G50

Installation manual

ENABLING BRIGHT OUTCOMES

BARCO

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Changes

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1 Safety

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About this document

Read this document attentively. It contains important information to prevent personal injury while installing and using the G50 projector. Furthermore, it includes several cautions to prevent damage to the G50 projector. Ensure that you understand and follow all safety guidelines, safety instructions and warnings mentioned in this chapter before installing the G50 projector.

Clarification of the term “G50” used in this document

When referring in this document to the term “G50” means that the content is applicable for following Barco products:

- G50-W6, G50-W7, G50-W8

Model certification name

- G50-W6, G50-W7, G50-W8

Barco provides a guarantee relating to perfect manufacturing as part of the legally stipulated terms of guarantee. Observing the specification mentioned in this chapter is critical for projector performance. Neglecting this can result in loss of warranty.

1.1 General considerations

General safety instructions

- Before operating this equipment please read this manual thoroughly and retain it for future reference.
- Installation and preliminary adjustments should be performed by qualified Barco personnel or by authorized Barco service dealers.
- All warnings on the projector and in the documentation manuals should be adhered to.
- All instructions for operating and use of this equipment must be followed precisely.
- All local installation codes should be adhered to.
- Additional instructions to supervise children, no staring, and not use optical aids.
- Additional instructions to install above the reach of children.
- Notice is given to supervise children and to never allow them to stare into the projector beam at any distance from the projector.
- Notice is given to use caution when using the remote control for starting the projector while in front of the projection lens.
- Notice is given to the user to avoid the use of optical aids such as binoculars or telescopes inside the beam.
- As with any bright light source, do not stare into the beam, RG2 IEC 62471-5:2015.
- WARNING: MOUNT ABOVE THE HEADS OF CHILDREN. The use of a ceiling mount is recommended with this product to place it above the eyes of children.
- IEC/EN 60825-1: 2014 Laser class 1 RG2 or RG3.
- IEC/EN 62471-5:2015 RG2 or RG3.

Notice on safety

This equipment is built in accordance with the requirements of the applicable international safety standards. These safety standards impose important requirements on the use of safety critical components, materials and insulation, in order to protect the user or operator against risk of electric shock and energy hazard and having access to live parts. Safety standards also impose limits to the internal and external temperature rises, radiation levels, mechanical stability and strength, enclosure construction and protection against the risk of fire. Simulated single fault condition testing ensures the safety of the equipment to the user even when the equipment's normal operation fails.

Laser safety precautions

This product is classified as Class 1 Laser Product-Risk Group 2 of IEC 60825-1:2014 and also complies with 21 CFR 1040.10 and 1040.11 as a Risk Group 2, LIP (Laser Illuminated Projector) as defined in IEC 62471-5: Ed.1.0. For more information, see Laser Notice No. 57, dated May 8, 2019.

According to IEC 60825-1:2014, EN 60825-1:2014 +A11:2021 and IEC 62471-5:2015, this projector may become CLASS 1 LASER PRODUCT - RISK GROUP 3 product when installed with G-lens (throw ratio 2.90-5.50).

To ensure safe operation, read all laser safety precautions before installing or operating the projector.

- This projector has one or several built-in Class 4 laser clusters. Disassembly or modification is very dangerous and should never be attempted.
- Any operation or adjustment not specifically instructed by the user’s guide creates the risk of hazardous laser radiation exposure.
- Do not open or disassemble the projector as this may cause damage by the exposure of laser radiation.
- As with any bright source, do not stare into the direct beam, RG2 IEC 62471-5:2015.
- No direct exposure to the beam shall be permitted, RG3 IEC 62471-5:2015 (When Throw Ratio large than 2.9).
- This projector is class 1 laser product of IEC 60825-1:2014, EN 60825-1:2014+A11:2021 and risk group 2 with the requirements of IEC 62471-5:2015.
- Operators shall control access to the beam within the hazard distance or install the product at the height that will prevent exposures of spectators' eyes within the hazard distance (When Throw Ratio large than 2.9).

Light Intensity Hazard Distance

This projector may become Class 1 Laser Product-Risk Group 3 (RG3) when installed with G lens (2.90 - 5.50 : 1) lens (throw ratio 2.90-5.50). Permanent eye injury is possible when exposed to the high intensity light beam within the hazard distance (HD).

Projection Lens	Throw Ratio	Classification and Requirements for Laser Illuminated Projectors (LIPs)		
G lens (2.90 - 5.50 : 1)	2.90 - 5.50	IEC 60825-1:2014 EN 60825-1:2014 +A11:2021	IEC 62471-5:2015	
		CLASS 1	RISK GROUP 3	Hazard distance • G50-W6: 1.3 meters • G50-W7: 1.5 meters • G50-W8: 2.0 meters

Follow the precautions to avoid light intensity hazard.

- NEVER look into the lens! High intensity light beam.
- Permanent eye injury is possible when exposed to the high intensity light beam within the hazard distance.
- Operators shall control access to the light beam within the hazard distance or install the product at a height that will prevent eye exposure within the hazard distance.
- Do not place any reflective objects in the light path of the projector.

User definition

Throughout this manual, the term SERVICE PERSONNEL refers to Barco authorized persons having appropriate technical training and experience necessary to be knowledgeable of potential hazards to which they are exposed (including, but not limited to HIGH VOLTAGE ELECTRIC and ELECTRONIC CIRCUITRY and HIGH BRIGHTNESS PROJECTORS) in performing a task, and of measures to minimize the potential risk to themselves or other persons. Only Barco authorized SERVICE PERSONNEL, knowledgeable of such risks, are allowed to perform service functions inside the product enclosure. The term USER and OPERATOR refers to any person other than SERVICE PERSONNEL. When installing an interchangeable lens with a throw ratio that make the projector become RG3, refer to chapter “Risk Group 3 Safety”, page 10. Such combination of projector and lens are intended for professional use only, and are not intended for consumer use.

FOR PROFESSIONAL USE ONLY means installation can only be carried out by Barco AUTHORIZED PERSONNEL familiar with potential hazards associated with high intensity light beams.

1.2 Risk Group 3 Safety

1.2.1 General considerations

Notice on optical radiation from G50 Projector when it becomes Risk Group 3

- For RG3, no direct exposure to the beam shall be permitted.
  For RG3, operators shall control access to the beam within the hazard distance or install the product at a height that will prevent eye exposure within the hazard distance.
- This projector has one or several built-in Class 4 laser clusters. Disassembly or modification is very dangerous and should never be attempted.
- Any operation or adjustment not specifically instructed by the user's guide creates the risk of hazardous laser radiation exposure.
- Do not open or disassemble the projector as this may cause damage by the exposure of laser radiation.

FOR PROFESSIONAL USE ONLY means installation can only be carried out by Barco AUTHORIZED PERSONNEL familiar with potential hazards associated with high intensity light beams.

WARNING: No direct exposure to the beam within the hazard distance shall be permitted, RG3 (Risk Group 3) IEC EN 62471-5:2015

CAUTION: Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

PPE (Personal Protective Equipment) description

A skilled person or service person shall be worn protective clothes and goggles when access to restricted area.

Possible skin or eye damage.

Disconnect power before servicing.

1.2.2 High Brightness precautions: Hazard Distance

HD
Hazard Distance (HD) is the distance measured from the projection lens at which the intensity or the energy per surface unit becomes lower than the applicable exposure limit on the cornea or on the skin. The light beam is considered (to be) unsafe for exposure if the distance from a person to the light source is less than the HD.

Restriction Zone (RZ) based on the HD

The HD depends on the amount of lumens produced by the projector and the type of lens installed. See chapter "General considerations", page 8.

To protect untrained end users (as cinema visitors, spectators) the installation shall comply with the following installation requirements: Operators shall control access to the beam within the hazard distance or install the product at a height that will prevent spectators' eyes from being in the hazard distance. Radiation levels in excess of the limits will not be permitted at any point less than 2.0 meter (SH) above any surface upon which persons other than operators, performers, or employees are permitted to stand or less than 1.0 meter (SW) lateral separation from any place where such persons are permitted to be. In environments where unrestrained behavior is reasonably foreseeable, the minimum separation height should be greater than or equal to 3.0 meter to prevent potential exposure, for example by an individual sitting on another individual's shoulders, within the HD.

These values are minimum values and are based on the guidance provided in IEC 62471-5:2015 section 6.6.3.5.

The installer and user must understand the risk and apply protective measures based upon the hazard distance as indicated on the label and in the user information. Installation method, separation height, barriers, detection system or other applicable control measure shall prevent hazardous eye access to the radiation within the hazard distance.

For example, projectors that have a HD greater than 1 m and emit light into an uncontrolled area where persons may be present should be positioned in accordance with “the fixed projector installation” parameters, resulting in a HD that does not extend into the audience area unless the beam is at least 2.0 meter above the floor level. In environments where unrestrained behavior is reasonably foreseeable, the minimum separation height should be greater than or equal to 3.0 meter to prevent potential exposure, for example by an individual sitting on another individual's shoulders, within the HD. Sufficiently large separation height may be achieved by mounting the image projector on the ceiling or through the use of physical barriers.

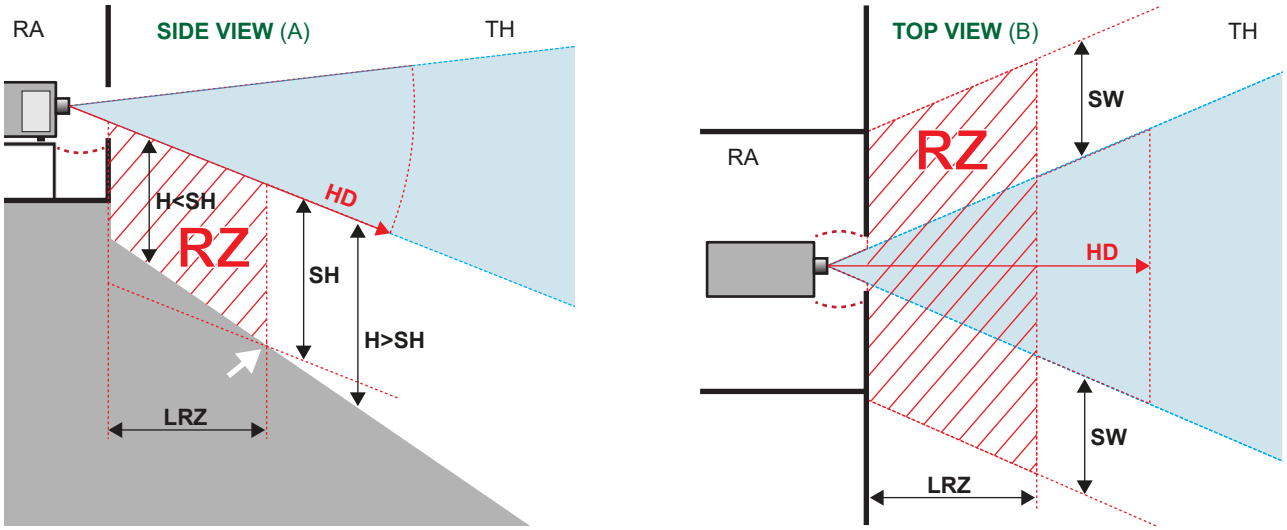


Image 1–1

A Side view
B Top view
RA Restricted Access location (boot area of projector).
TH Theater
RZ Restriction Zone in the theater
HD Hazard Distance
LRZ Length Restriction Zone in the theater
H Height between surface floor and the light beam
SH Separation Height
SW Separation Width

Based on national requirements, no person is allowed to enter the projected beam within the zone between the projection lens and the related hazard distance (HD). This shall be physically impossible by creating sufficient separation height or by placing barriers. The minimum separation height takes into account the surface upon which persons other than operator, performers or employees are permitted to stand.

On Image 1–2 a typical setup is displayed. It must be verified if these minimum requirements are met. If required a restricted zone (RZ) in the theater must be established. This can be done by using physical barrier, like a red rope as illustrated in Image 1–2.

The restricted area sticker can be replaced by a sticker with only the symbol.

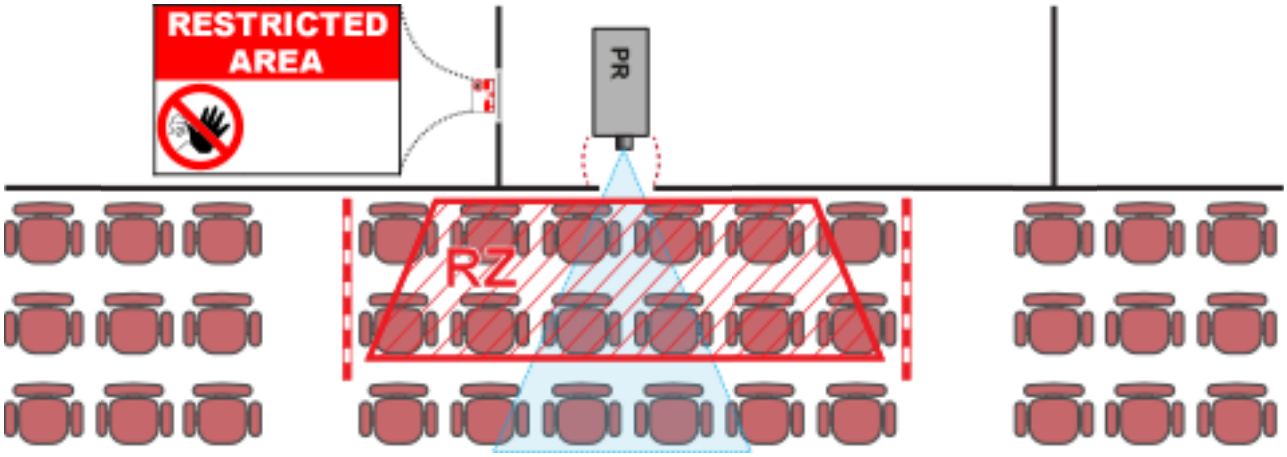


Image 1–2

USA market

For LIPs (Laser Illuminated Projectors) installed in the USA market other restriction zone conditions apply.

LIPs for installation in restrained environment (cinema theaters, business rooms, class rooms, museums ...) shall be installed at height vertically above the floor such that the bottom plane of the hazard distance zone shall be no lower than 2.5 meters above the floor. Horizontal clearance to the hazard distance zone shall be not less than 1 meter. Alternatively, in case the height of the separation barrier for the horizontal clearance is at least 1 meter high then the horizontal clearance (SW) can be reduced to:

- 0 meter if the height of the hazard zone is minimum 2.5 meter.
- 0.1 meter if the height of the hazard zone is minimum 2.4 meter.
- 0.6 meter if the height of the hazard zone is minimum 2.2 meter.

LIPs for installations in unrestrained environment (concerts, ...) shall be installed at a height vertically above the floor such that the bottom plane of the Hazard distance Zone shall be no lower than 3 meters above the floor. Horizontal clearance to the hazard distance zone shall be not less than 2.5 meters. Any human access horizontally to the Hazard Zone, if applicable, shall be restricted by barriers. If human access is possible in an unsupervised environment, the horizontal or vertical clearances shall be increased to prevent exposure to the hazard distance zone.

The LIP shall be installed by Barco or by a trained and Barco-authorized installer or shall only be transferred to laser light show variance holders. This is applicable for dealers and distributors since they may need to install the LIP (demo install) and/or they transfer (sell, rent, lease) the LIP. Dealers and distributors shall preserve sales and installation records for a period of 5 years. Variance holders may currently hold a variance for production of Class IIIB and IV laser light shows and/or for incorporating RG3 LIPs. Laser light show variance for RG3 LIPs can be requested by mailing the application to RadHealthCustomerService@fda.hhs.gov.

The installation checklist for laser illuminated RG3 projectors must be fully completed after the installation. The installation checklist can be downloaded from the Barco website. The installer shall preserve the checklist for a period of 5 years. A copy can remain on-site.

Install one or more readily accessible controls to immediately terminate LIP projection light. The power input at the projector side is considered as a reliable disconnect device. When required to switch off the projector, disconnect the power cord at the projector side. In case the power input at the projector side is not accessible (e. g. truss mount), the socket outlet supplying the projector shall be installed nearby the projector and be easily accessible, or a readily accessible general disconnect device shall be incorporated in the fixed wiring.

1.2.3 HD for fully enclosed projection systems

HD
Hazard Distance (HD) is the distance measured from the projection lens at which the intensity or the energy per surface unit becomes lower than the applicable exposure limit on the cornea or on the skin. The light beam is considered (to be) unsafe for exposure if the distance from a person to the light source is less than the HD.

Restriction Zone (RZ) based on the HD

The projector is also suitable for rear projection applications; projecting a beam onto a defuse coated projection screen. As displayed in Image 1– 3 two areas should be considered: the restricted enclosed projection area (RA) and the observation area (TH).

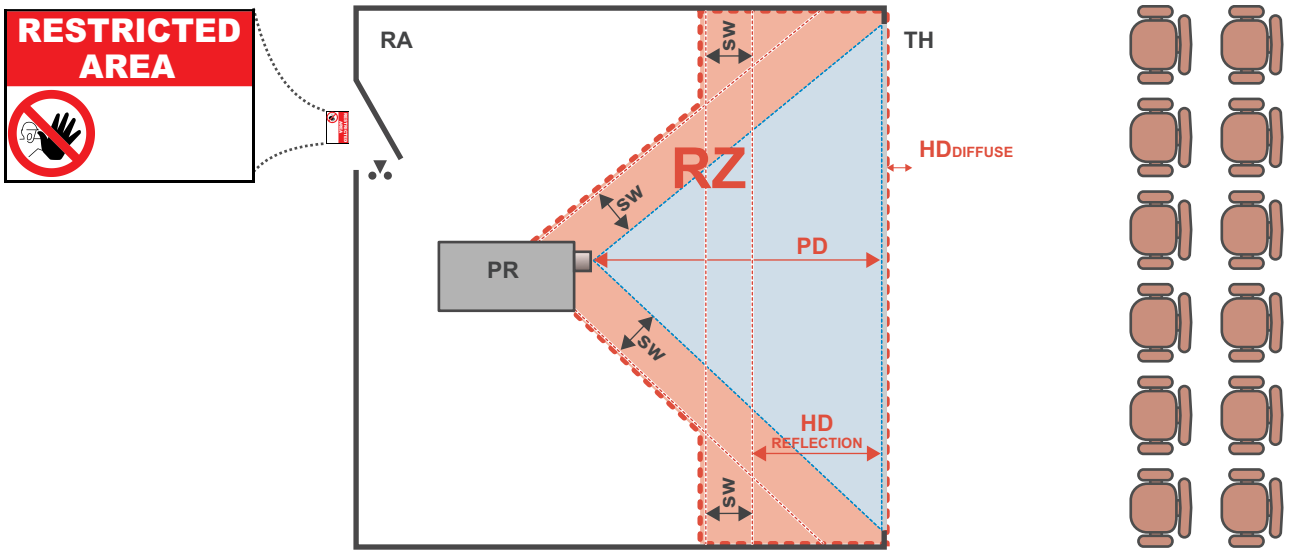


Image 1–3

RA Restricted Access location (enclosed projection area).
PR Projector.
TH Theater (observation area).
RZ Restriction Zone.
PD Projection Distance.
SW Separation Width. Must be minimum 1 meter.

For this type of setup 3 different HD shall be considered:

- HD as discussed in “High Brightness precautions: Hazard Distance”, page 10, relevant for intrabeam exposure.
- $HD_{reflection}$: the distance that has to be kept restrictive related to the reflected light from the rear projection screen.
- $HD_{diffuse}$: the relevant distance to be considered while observing the diffuse surface of the rear projection screen.

As described in “High Brightness precautions: Hazard Distance”, page 10, it is mandatory to create a restricted zone within the beam areas closer than any HD. In the enclosed projection area the combination of two restricted zones are relevant: The restricted zone of the projected beam toward the screen; taking into account 1 meter Separation Width (SW) from the beam onward. Combined with the restricted zone related to the rear reflection from the screen ($HD_{reflection}$); also taking into account a 1 meter lateral separation.

The $HD_{reflection}$ distance equals 25% of the difference between the determined HD distance and the projection distance to the rear projection screen. To determine the HD distance for the used lens and projector model see chapter “General considerations”, page 8.

$$HD_{reflection} = 25\% \ (HD - PD)$$

The light emitted from the screen within the observation shall never exceed the RG2 exposure limit, determined at 10 cm. The $HD_{diffuse}$ can be neglected if the measured light at the screen surface is below 5000 cd/m² or 15000 LUX.

1.3 Important safety instructions

To prevent the risk of electrical shock

- This product should be operated from a mono phase AC power source.
- This apparatus must be grounded (earthed) via the supplied 3 conductor AC power cable. If none of the supplied power cables are the correct one, consult your dealer. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the purpose of the grounding-type plug.
- Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord. To disconnect the cord, pull it out by the plug. Never pull the cord itself.
- Use only the power cord supplied with your device. While appearing to be similar, other power cords have not been safety tested at the factory and may not be used to power the device. For a replacement power cord, contact your dealer.
- Do not operate the projector with a damaged cord. Replace the cord.
- Do not operate the projector if the projector has been dropped or damaged until it has been examined and approved for operation by a qualified service technician. Position the cord so that it will not be tripped over, pulled, or contact hot surfaces.
- If an extension cord is necessary, a cord with a current rating at least equal to that of the projector should be used. A cord rated for less amperage than the projector may overheat.
- Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electrical shock.
- Do not expose this projector to rain or moisture.
- Do not immerse or expose this projector in water or other liquids.
- Do not spill liquid of any kind on this projector.
- Should any liquid or solid object fall into the cabinet, unplug the set and have it checked by qualified service personnel before resuming operations.
- Do not disassemble this projector, always take it to an authorized trained service person when service or repair work is required.
- Do not use an accessory attachment which is not recommended by the manufacturer.
- Lightning - For added protection for this video product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet. This will prevent damage to the device due to lightning and AC power-line surges.

To prevent personal injury

- To prevent injury and physical damage, always read this manual and all labels on the system before connecting to the wall outlet or adjusting the projector.
- To prevent injury, take note of the weight of the projector.
- To prevent injury, ensure that the lens and all covers are correctly installed. See installation procedures.
- Warning: high intensity light beam. NEVER look into the lens! High luminance could result in damage to the eye.
- Warning: extremely high brightness laser: This projector uses extremely high brightness laser. Never attempt to look directly into the lens or at the laser.
- The power input at the projector side is considered as the disconnect device. When required to switch off the projector, to access parts inside, always disconnect the power cord at the projector side. In case the power input at the projector side is not accessible (e.g. ceiling mount), the socket outlet supplying the projector shall be installed nearby the projector and be easily accessible, or a readily accessible general disconnect device shall be incorporated in the fixed wiring.
- Do not place this equipment on an unstable cart, stand, or table. The product may fall, causing serious damage to it and possible injury to the user.
- High brightness warning: The projector light source must be switched off when no projection lens is installed. It is hazardous to operate without lens or shield. Always switch the output light off when replacing a lens. Lenses or shields shall be changed if they have become visibly damaged to such extent that their effectiveness is impaired. For example by cracks or deep scratches.
- When installing an interchangeable lens with a throw ratio that makes the projector become an RG3 unit, (See chapter “Available lenses” in the installation manual), refer to chapter “Risk Group 3 Safety”, page 10, for information regarding precautions.
- FOR PROFESSIONAL USE ONLY means installation can only be carried out by Barco AUTHORIZED PERSONNEL familiar with potential hazards associated with high intensity light beams.

- **Warning: High brightness projector:** This projector embeds high brightness (radiance) lasers; this laser light is processed through the projectors optical path. Native laser light is not accessible by the end user in any use case. The light exiting the projection lens has been diffused within the optical path, representing a larger source and lower radiance value than native laser light. Nevertheless, when RG3, the projected light represents a significant risk for the human eye when exposed directly within the beam. This risk is not specific related to the characteristics of laser light but solely to the high thermal induced energy of the light source; which is comparable with lamp based systems. When RG3, thermal retinal eye injury is possible when exposed within the Hazard Distance. The Hazard Distance (HD) is defined from the projection lens surface towards the position of the projected beam where the irradiance equals the maximum permissible exposure as described in the chapter “High Brightness precautions: Hazard Distance”, page 10.
- Always switch off the projector and disconnect from the mains power supply before attempting to remove any of the projector covers or access parts inside the projector.
- This product contains no user serviceable parts. Attempts to modify/replace mechanics or electronics inside the housing or compartments will violate any warranties and may be hazardous.
- For correct physical installation, refer to the Installation manual.
- Only place the projector on a stable surface or mount it securely using an approved ceiling-mount.
- Exposure to UV radiation: Some medications are known to make individuals extra sensitive to UV radiation. The American Conference of Governmental Industrial Hygienists (ACGIH) recommends occupational UV exposure for an-8 hour day to be less than 0,1 micro-watts per square centimeters of effective UV radiation. An evaluation of the workplace is advised to assure employees are not exposed to cumulative radiation levels exceeding these government guidelines. The exposer of this UV radiation is allowed for only 1 hour per day for maintenance and service persons.

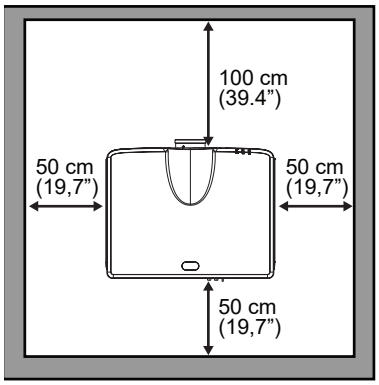
To prevent fire hazard

- Do not place flammable or combustible materials near the projector!
- Barco large screen projection products are designed and manufactured to meet the most stringent safety regulations. This projector radiates heat on its external surfaces and from ventilation ducts during normal operation, which is both normal and safe. Exposing flammable or combustible materials into close proximity of this projector could result in the spontaneous ignition of that material, resulting in a fire. For this reason, it is absolutely necessary to leave an “exclusion zone” around all external surfaces of the projector whereby no flammable or combustible materials are present. The exclusion zone on the lens side must be at least 100 cm (39.4”). The exclusion zone on all other projector sides must be not less than 50 cm (19.7”).
- Do not cover the projector or the lens with any material while the projector is in operation.
- Keep flammable and combustible materials away from the projector at all times.
- Mount the projector in a well-ventilated area away from sources of ignition and out of direct sun light.
- Never expose the projector to rain or moisture. In the event of fire, use sand, CO2 or dry powder fire extinguishers. Never use water on an electrical fire.
- Always have service performed on this projector by authorized Barco service personnel. Always insist on genuine Barco replacement parts. Never use non- Barco replacement parts as they may degrade the safety of this projector.
- Slots and openings in this equipment are provided for ventilation. To ensure reliable operation of the projector and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the projector too close to walls, or other similar surface. This projector should never be placed near or over a radiator or heat register. This projector should not be placed in a built-in installation or enclosure unless proper ventilation is provided.
- Projection rooms must be well ventilated or cooled in order to avoid build up of heat.
- Let the projector cool down completely before storing. Remove cord from the projector when storing.

To prevent projector damage

- Always remove lens cap before switching on the projector. If the lens cap is not removed, it may melt due to the high energy light emitted through the lens. Melting the lens cap may permanently damage the surface of the projection lens.
- Cleaning the booth area would be monthly minimum. Neglecting this could result in disrupting the air flow inside the projector, causing overheating. Overheating may lead to the projector shutting down during operation.
- The projector must always be installed in a manner which ensures free flow of air into its air inlets and unimpeded evacuation of the hot air from its cooling system.

- If more than one projector is installed in a common projection booth, the exhaust air flow requirements are valid for EACH individual projector system. Note that inadequate air extraction or cooling will result in decreased life expectancy of the projector as a whole as well as causing premature failure of the lasers.
- In order to ensure that correct airflow is maintained, and that the projector complies with Electromagnetic Compatibility (EMC) requirements, it should always be operated with all of its covers in place.
- Slots and openings in the cabinet are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register. The device should not be placed in a built-in installation or enclosure unless proper ventilation is provided.
- Ensure that nothing can be spilled on, or dropped inside the projector. If this does happen, switch off and unplug the mains supply immediately. Do not operate the projector again until it has been checked by qualified service personnel.
- Do not block the projector cooling fans or free air movement around the projector.
- Do not use this equipment near water.
- Only connect the projector to signal sources and voltages as described in the technical specification. Connecting to unspecified signal sources or voltages may lead to malfunction and permanent damage of the unit.
- Special care for Laser Beams: Special care should be used when DLP projectors are used in the same room as high power laser equipment. Direct or indirect hitting of a laser beam on to the lens can severely damage the Digital Mirror Devices™ in which case there is a loss of warranty.
- Never place the projector in direct sun light. Sun light on the lens can severely damage the Digital Mirror Devices™ in which case there is a loss of warranty.
- Save the original shipping carton and packing material. They will come in handy if you ever have to ship your equipment. For maximum protection, repack your set as it was originally packed at the factory.
- Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning. Never use strong solvents, such as thinner or benzine, or abrasive cleaners, since these will damage the cabinet. Stubborn stains may be removed with a cloth lightly dampened with mild detergent solution.
- To ensure the highest optical performance and resolution, the projection lenses are specially treated with an anti-reflective coating, therefore, avoid touching the lens. To remove dust on the lens, use a soft dry cloth. Do not use a damp cloth, detergent solution, or thinner.
- Rated operating ambient temperature: ta= 5 °C (41 °F) to 40 °C (104 °F).
- Rated operating humidity: 10% RH to 85% RH (non-condensing).
- Do not operate the projector outside its temperature and humidity specifications as this may result in overheating and malfunction.
- Do not operate the projector in environments with excessive dust. The projector must be installed in environments where the dust conditions are as low as expected in a standard office environment. The environment should be clean and free from hostile airborne particles which may have harmful effects on the internal parts of the projector (e.g., airborne contaminants produced by smoke or snow machines, contaminants derived from chemical products such as e.g., disinfectants, conducting types of dust, excessive dust).
- If the specified environmental conditions cannot be guaranteed (e.g., construction works), the projector must be removed, or switched off and fully protected until the requirements are fulfilled.
- Contact Barco in case uncertainty exist on the environmental conditions linked to air contamination prior to install and operate the projector.
- Sufficient free space around the projector is critical for proper air circulation and cooling of the unit. The dimensions shown in Image 1–4 indicate the minimum space required.
- For ceiling mounted installations, make sure to leave a minimum space as shown in Image 1–4 between the ceiling mount and the bottom intake vents of the projector.



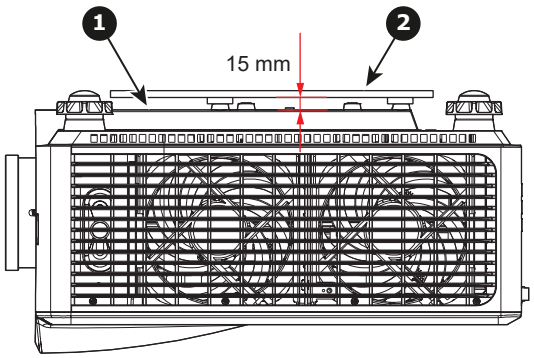


Image 1–4

1 Bottom intake vents.
2 Ceiling mount plate.

To prevent battery explosion

- Danger of explosion if battery is incorrectly installed.
- Replace only with the same or equivalent type recommended by the manufacturer.
- For disposal of used batteries, always consult federal, state, local and provincial hazardous waste disposal rules and regulations to ensure proper disposal.

On servicing

- Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage potentials and risk of electric shock.
- Refer all servicing to qualified service personnel.
- Attempts to alter the factory-set internal controls or to change other control settings not specially discussed in this manual can lead to permanent damage to the projector and cancellation of the warranty.
- Replacement parts: When replacement parts are required, be sure the service technician has used original Barco replacement parts or authorized replacement parts which have the same characteristics as the Barco original part. Unauthorized substitutions may result in degraded performance and reliability, fire, electric shock or other hazards. Unauthorized substitutions may void warranty.
- Safety check: Upon completion of any service or repairs to this projector, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

Malfunction unit

Remove all power from the projector and refer servicing to qualified service technicians under the following conditions:

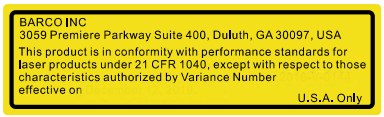
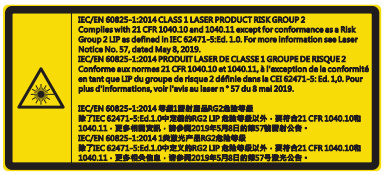
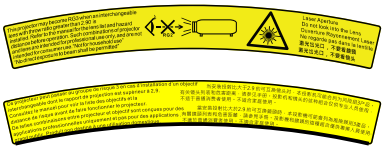
- When the power cord or plug is damaged or frayed.
- If liquid has been spilled into the equipment.
- If the product has been exposed to rain or water.
- If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of the other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
- If the product has been dropped or the cabinet has been damaged.
- If the product exhibits a distinct change in performance, indicating a need for service.

Safety Data Sheets for Hazardous Chemicals

For safe handling information on chemical products, consult the Safety Data Sheet (SDS). SDSs are available upon request via safetydatasheets@barco.com.

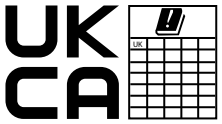
1.4 Product safety labels

Light beam related safety labels

Label image	Label description
	FDA laser variance (US projectors only). This product is in conformity with performance standards fro laser products under 21 CFR 1040, except with respect to those characteristics aurhorized by Variance Number xxxx-x-xxxx effective on [effective date of variance approval]. For the exact Variance Number and effective date see yellow label on the projector.
	IEC 60825-1:2014 CLASS 1 LASER PRODUCT RISK GROUP 2 Complies with 21 CFR 1040.10 and 1040.11 except for conformance as a Risk Group 2 LIP as defined in IEC 62471–5:Ed.1.0. For more information see Laser Notice No. 57, dated May 8, 2019.
	Warning: mount above the heads of children. Additional warning against eye exposure for close exposures less than 1 m.
	This projector may become RG3 when an interchangeable lens with throw ratio greater than 2.90 is installed. Refer to the manual for the lens list and hazard distance before operation. Such combinations of projector and lens are intended for professional use only, and are not intended for consumer use. “Not for household use”. “No direct exposure to beam shall be permitted, which can cause injury to the retina in the back of the eye.” Laser Aperture. Do not look into the Lens.

1.5 Regulatory

UK Compliance



This product is fit for use in the UK.

Authorised Representative: Barco UK Ltd

Address: Building 329, Doncastle Road
Bracknell RG12 8PE, Berkshire, United Kingdom

1.6 Download Product Manual

Download Product Manual

Product manuals and documentation are available online at *www.barco.com/td*.

Registration may be required; follow the instructions given on the website.

IMPORTANT! Read Installation Instructions before connecting equipment to the mains power supply.

2 Introduction

2.1 Installation requirements 22
2.2 Projector package overview 24
2.3 Main unit 25
2.4 Input/Output ports 26
2.5 Control panel 27
2.6 Remote Control Unit 28
2.7 Lenses 29

2.1 Installation requirements

Environment conditions

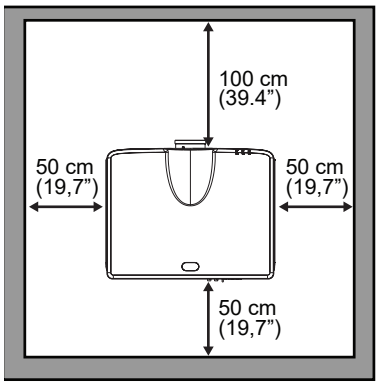
Table below summarizes the physical environment in which the G50 projector may be safely operated or stored.

Environment	Operating	Non-Operating
Ambient Temperature	5°C (41°F) to 40°C (104°F)	-10°C (14°F) to 60°C (140°F)
Humidity	10% to 85% RH Non-Condensed	5% to 90% RH Non-Condensed
Altitude	10000 ft maximum at 0°C to 30°C	
Air cleanliness	Clean office environment	Clean office environment

Cooling requirements

The projector is fan cooled and must be installed with sufficient space around the projector head, minimum 100 cm (39.4 inch) to ensure sufficient air flow. It should be used in an area where the ambient temperature, as measured at the projector air inlet, does not exceed +40°C (+104°F).

For ceiling mounted installations, make sure to leave 30 mm (1.2”) between the ceiling mount and the bottom intake vents of the projector.



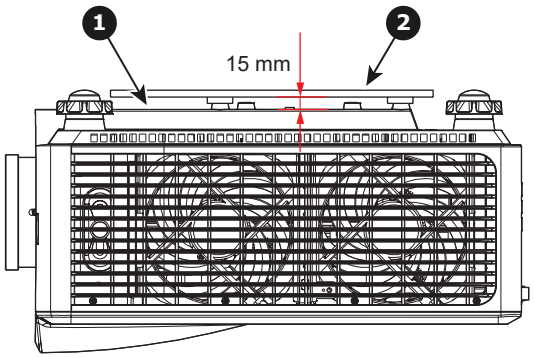


Image 2–1

1 Bottom intake vents.
2 Ceiling mount plate.

Clean air environment

The projector must be installed in environments where the dust conditions are as low as expected in a standard office environment. The environment should be clean and free from hostile airborne particles which may have harmful effects on the internal parts of the projector (e. g., airborne contaminants produced by smoke or snow machines, contaminants derived from chemical products such as e. g., disinfectants, conducting types of dust, excessive dust).

The projector must always be mounted in a manner which ensures the free flow of clean air into the projectors ventilation inlets. For installations in environments where the projector is subject to airborne contaminants such as that produced by smoke machines or similar (these deposit a thin layer of greasy residue upon the projectors internal optics and imaging electronic surfaces, degrading performance), then this contamination must be removed prior to it reaching the projectors clean air supply. Devices or structures to extract or shield contaminated air well away from the projector are a prerequisite, if this is not a feasible solution then measures to relocate the projector to a clean air environment should be considered.

Only ever use the manufacturer’s recommended cleaning kit which has been specifically designed for cleaning optical parts, never use industrial strength cleaners on the projector’s optics as these will degrade optical coatings and damage sensitive optoelectronics components. Failure to take suitable precautions to protect the projector from the effects of persistent and prolonged air contaminants will culminate in extensive and irreversible ingrained optical damage. At this stage cleaning of the internal optical units will be noneffective and impracticable. Damage of this nature is under no circumstances covered under the

manufacturer's warranty and may deem the warranty null and void. In such a case the client shall be held solely responsible for all costs incurred during any repair. It is the clients responsibility to ensure at all times that the projector is protected from the harmful effects of hostile airborne particles in the environment of the projector. The manufacturer reserves the right to refuse repair if a projector has been subject to knowingly neglect, abandon or improper use.

CAUTION: If the specified environmental conditions cannot be guaranteed (e.g., during construction works), the projector must be removed, or switched off and fully protected until the requirements are fulfilled.

Contact Barco in case uncertainty exist on the environmental conditions linked to air contamination prior to install and operate the projector.

Main power requirements

The G50 projector operates from a nominal mono phase power net with a separate earth ground PE.

Projector	Power requirements
G50-W6	AC INPUT 90-264V, 50/60Hz
G50-W7	AC INPUT 90-264V, 50/60Hz
G50-W8	AC INPUT 90-264V, 50/60Hz

The power cord required to connect the projector with the power net is delivered with the projector.

Projector weight

Do not underestimate the weight of the projector. Be sure that the pedestal or ceiling mount on which the projector has to be installed is capable of handling five (5) times the complete load of the system.

Projector	Weight (without lens)
G50-W6	11.0 kg / 24.25 lbs
G50-W7	11.8 kg / 26.0 lbs
G50-W8	13.0 kg / 28.66 lbs

2.2 Projector package overview

Box content

This projector comes with all the items shown below. Check to make sure your package is complete. Contact your dealer immediately if anything is missing.

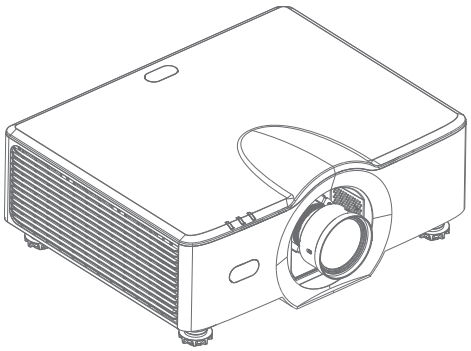


Image 2–2 Projector

Image 2–3 Remote Control

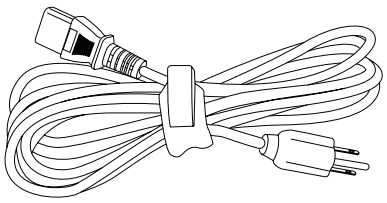


Image 2–4 Power cord.

The product Safety Manual and Quick Start Guide are also included. Download the complete and latest updated installation manual and user guide form the Barco website.

The projection lens is an optional item, not a standard accessary in the package.

Due to the difference in applications for each country, some regions may have different accessories.

Batteries are not included. Use 2 AAA type batteries.

2.3 Main unit

Component locations

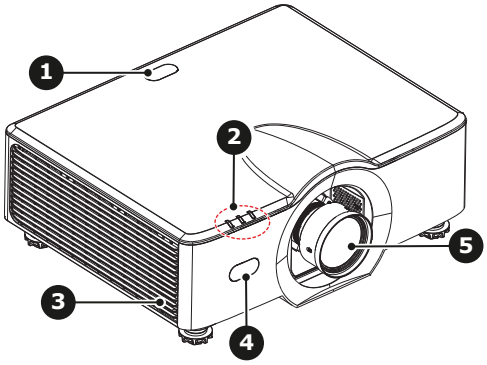


Image 2–5

1 IR receiver (top)
2 LED status indicators
3 Right speaker
4 IR receiver (front)
5 Projeciton lens

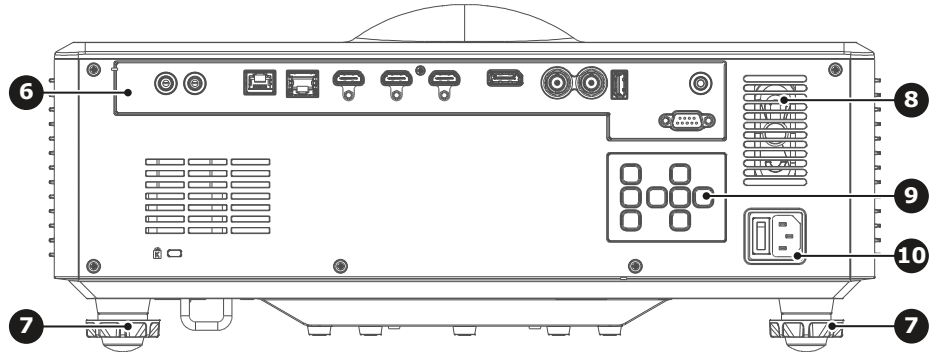


Image 2–6

6 Input/Output panel
7 Adjustable feet
8 Rear speaker
9 Control panel
10 Power switch and socket

Airflow

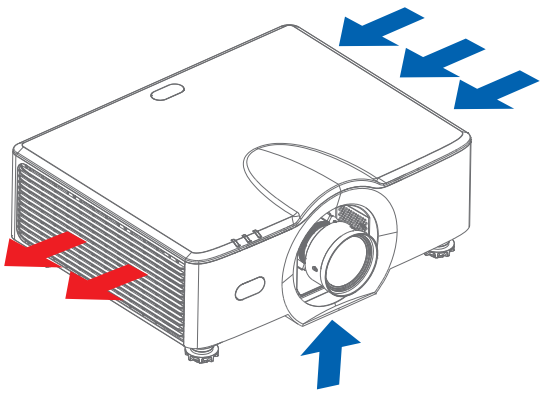
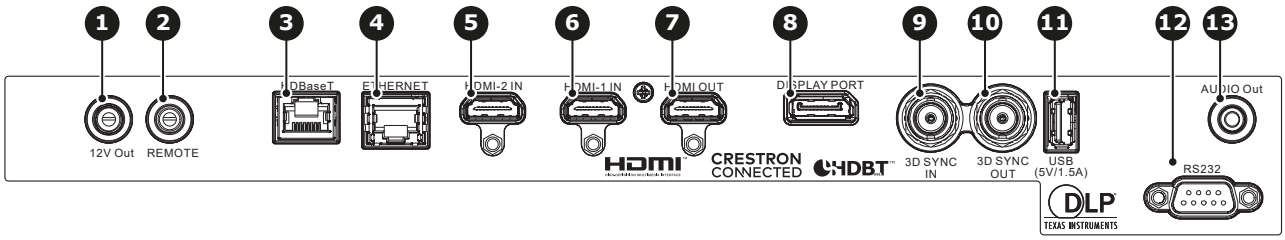


Image 2–7

2.4 Input/Output ports

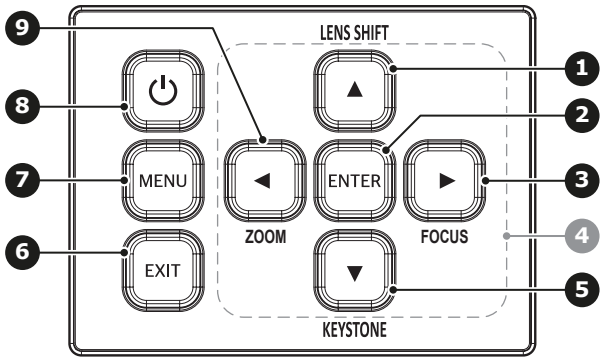
Input/Output ports



1. DC 12V output
2. Wired remote input
3. HDBaseT port
4. LAN connection (RJ45)
5. HDMI input port 2
6. HDMI input port 1
7. HDMI output port
8. DisplayPort port
9. 3D sync input port
10. 3D sync output port
11. USB port type A
12. RS232 serial port
13. Audio output port

2.5 Control panel

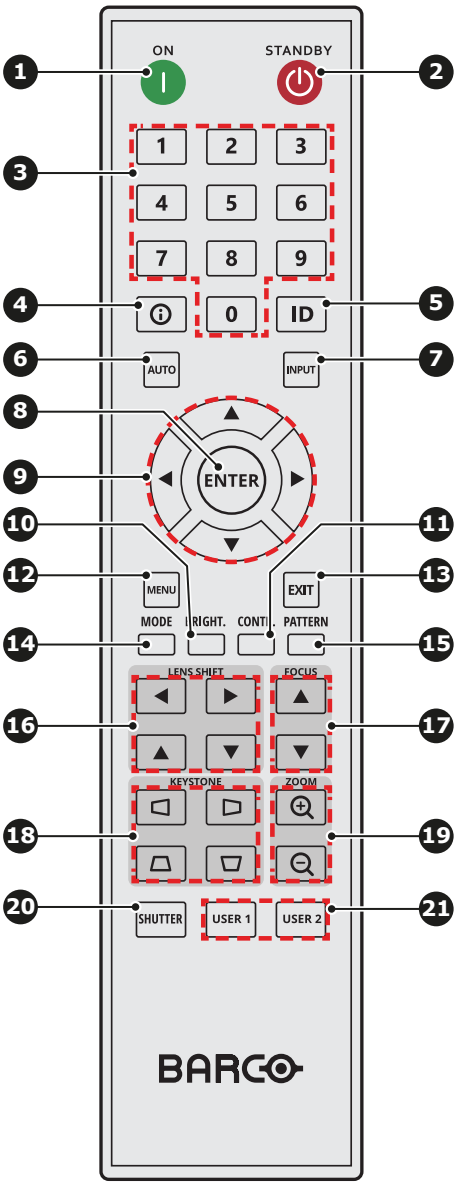
Control panel



1. Adjust lens position
2. Confirm the settings
3. Adjust the image focus
4. Menu navigation buttons
5. Adjust horizontal/vertical keystone
6. Back to parent menu or exit menu
7. Enter OSD menu
8. Power On/Off
9. Adjust the image size

2.6 Remote Control Unit

Remote Control Unit (RCU)

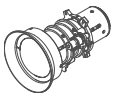
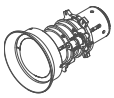
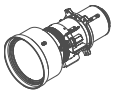
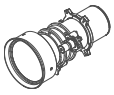
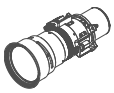


1. Power On
2. Power Off (Standby)
3. Number keys 0-9
4. Source information
5. Projector ID setting
6. Auto sync input source
7. Select input source
8. Confirm menu selection
9. Menu navigation
10. Adjust brightness
11. Adjust contrast
12. Open OSD menu
13. Back to parent menu or exit menu
14. Preset color mode
15. Display test patterns
16. Adjust lens shift
17. Adjust focus
18. Adjust horizontal/vertical keystone
19. Adjust image size
20. Shutter
21. User programmable hot key
    Default USER 1 = Audio Mute on/off
    Default USER 2 = Short cut Audio Volume menu

2.7 Lenses

The following table is subject to changes and was last updated on 2023-06-09. Consult the Barco website for the most recent information about available lenses.

Available lenses

Order No	Description	Throw Ratio	Image
R9801830 [1]	G lens - Ultra Short Throw 90° (This lens has special installation instructions. See chapter "G lens (0.37 - 0.4 : 1) UST 90°", page 57)	0.37 - 0.4 : 1 (WUXGA)	
R9802300	G lens - Short Throw	0.65 - 0.75 : 1 (WUXGA)	
R9801840	G lens - Short Throw	0.75 - 0.95 : 1 (WUXGA)	
R9832755	G lens - Wide zoom	0.95 - 1.22 : 1 (WUXGA)	
R9801784	G lens - Standard	1.22 - 1.52 : 1 (WUXGA)	
R9832756	G lens - Long Zoom	1.52 - 2.92 : 1 (WUXGA)	
R9832778	G lens - Ultra Long Zoom	2.90 - 5.50 : 1 (WUXGA)	

Lens specification table

Projection Lens			R9802300 Short Throw		R9801840 Short Throw		R9832755 Wide Zoom		R9801784 Standard		R9832756 Long Zoom		R9832778 Ultra Long Zoom	
Throw Ratio			0.65 - 0.75		0.75 - 0.95		0.95 - 1.22		1.22 - 1.52		1.52 - 2.92		2.90 - 5.50	
Zoom Ratio			1.15X		1.28X		1.25X		1.25X		1.9X		1.9X	
Throw Distance			0.68 ~ 8.29m		0.79 ~ 10.38 m		1.01~13.33 m		1.29 ~ 16.58 m		1.61 ~ 31.70 m		3.18 ~ 57.86 m	
Screen size														
Throw Ratio			0.65	0.75	0.75	0.95	0.95	1.22	1.22	1.53	1.52	2.92	2.9	5.5
Diagonal (inch)	Height (m)	Width (m)	Min (m)	Max (m)	Min (m)	Max (m)	Min (m)	Max (m)	Min (m)	Max (m)	Min (m)	Max (m)	Min (m)	Max (m)
50	0.67	1.08	0.68	0.79	0.79	1.01	1.01	1.31	1.29	1.62	1.61	3.12	3.18	5.89
60	0.81	1.29	0.83	0.96	0.96	1.22	1.22	1.57	1.56	1.95	1.94	3.76	3.78	7.05
70	0.94	1.51	0.97	1.13	1.12	1.43	1.43	1.84	1.82	2.29	2.27	4.39	4.39	8.20
80	1.08	1.72	1.11	1.29	1.28	1.64	1.63	2.11	2.09	2.62	2.60	5.03	5.00	9.36
90	1.21	1.94	1.26	1.46	1.45	1.85	1.84	2.38	2.35	2.95	2.94	5.66	5.61	10.51

1. This lens is sold as a package containing lens, lens support and safety cable (see Barco website for ordering information)

Projection Lens			R9802300 Short Throw		R9801840 Short Throw		R9832755 Wide Zoom		R9801784 Standard		R9832756 Long Zoom		R9832778 Ultra Long Zoom	
100	1.35	2.15	1.40	1.63	1.61	2.05	2.05	2.64	2.62	3.28	3.27	6.30	6.21	11.67
110	1.48	2.37	1.55	1.79	1.78	2.26	2.26	2.91	2.89	3.62	3.60	6.93	6.82	12.82
120	1.62	2.58	1.69	1.96	1.94	2.47	2.47	3.18	3.15	3.95	3.94	7.57	7.43	13.98
130	1.75	2.80	1.83	2.13	2.10	2.68	2.67	3.44	3.42	4.28	4.27	8.20	8.04	15.13
140	1.88	3.02	1.98	2.29	2.27	2.89	2.88	3.71	3.69	4.61	4.60	8.84	8.65	16.29
150	2.02	3.23	2.12	2.46	2.43	3.09	3.09	3.98	3.95	4.95	4.94	9.47	9.25	17.44
160	2.15	3.45	2.27	2.62	2.60	3.30	3.30	4.24	4.22	5.28	5.27	10.11	9.86	18.60
170	2.29	3.66	2.41	2.79	2.76	3.51	3.51	4.51	4.48	5.61	5.60	10.74	10.47	19.75
180	2.42	3.88	2.55	2.96	2.92	3.72	3.72	4.78	4.75	5.94	5.93	11.38	11.08	20.91
190	2.56	4.09	2.70	3.12	3.09	3.93	3.92	5.05	5.02	6.27	6.27	12.01	11.69	22.06
200	2.69	4.31	2.84	3.29	3.25	4.13	4.13	5.31	5.28	6.61	6.60	12.65	12.29	23.22
250	3.37	5.38	3.56	4.12	4.07	5.17	5.17	6.65	6.61	8.27	8.27	15.82	15.33	28.99
300	4.04	6.46	4.28	4.96	4.89	6.21	6.21	7.98	7.95	9.93	9.93	19.00	18.37	34.77
350	4.71	7.54	5.00	5.79	5.71	7.26	7.25	9.32	9.28	11.59	11.60	22.17	21.41	40.54
400	5.38	8.62	5.72	6.62	6.53	8.30	8.29	10.66	10.61	13.25	13.26	25.35	24.45	46.31
450	6.06	9.69	6.45	7.45	7.35	9.34	9.33	11.99	11.94	14.92	14.93	28.52	27.47	52.09
500	6.73	10.77	7.17	8.29	8.17	10.38	10.37	13.33	13.27	16.58	16.59	31.70	30.53	57.86

Installation procedures

3

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3.2 Installing the lens 33
3.3 Installing the lens safety cable 34
3.4 Connecting the projector with the power net 38
3.5 Connecting to a computer or laptop 39
3.6 Connecting to video sources 40
3.7 Ceiling mount installation 41
3.8 Software update 42

To install the UST lens see chapter “G lens (0.37 - 0.4 : 1) UST 90°”, page 57, and to install the UST 90° lens see chapter “G lens (0.37 - 0.4 : 1) UST 90°”, page 57.

3.1 RCU battery installation

How to install the batteries of the Remote Control Unit

1. Remove the cover by sliding it in the direction indicated by the arrow
2. Insert two new AAA (alkaline) batteries (observe the polarity).

   Note: Batteries are not delivered with the RCU!

3. Replace the cover.

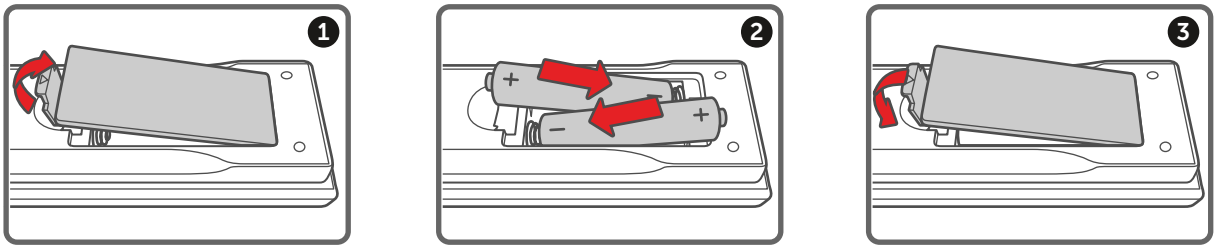


Image 3–1

Notes for the Remote Control Unit

- Be sure to insert the batteries in the corresponding orientations to match the polarities.
- Do not mix new batteries with used batteries as it would shorten the life of new batteries or cause leakage.
- Only used AAA batteries as instructed; do not attempt to insert different types of batteries into the remote control.
- If the remote is going to be unused for long periods of time, be sure to remove the batteries to prevent leakage, which could damage the remote control.
- The liquid contents in the batteries is harmful to the skin; do not touch the leakage with your bare hands directly. When installing fresh batteries, be sure to clean up the leakage thoroughly.
- Under most circumstances, you only need to point the remote control towards the screen and the IR signal would be reflected off the screen and picked up by the IR sensor on the projector. But under specific circumstances, the projector may fail to receive signals from the remote control due to environmental factors. When this happens, orient the remote control at the projector and try again.
- If the range of effective remote control signal reception decreases or if the remote control stops working, replace the batteries.
- If the infrared receiver is exposed to fluorescent lamp or strong sunlight, the remote control may not operate normally.
- Refer to the regulations enforced by your local government on the disposal of used batteries; improper disposal could damage the environment.

3.2 Installing the lens

WARNING: This procedure may only be performed by qualified technical service personnel.

How to install the lens

1. Remove the lens cap counterclockwise.

   Caution: Lens cap should be removed before installing the lens. If not it will damage the projector.

2. Gently insert the lens in the lens holder. Ensure that the label “TOP” (reference 1) is upwards oriented while inserting the lens.
3. Rotate the lens clockwise to lock the lens.

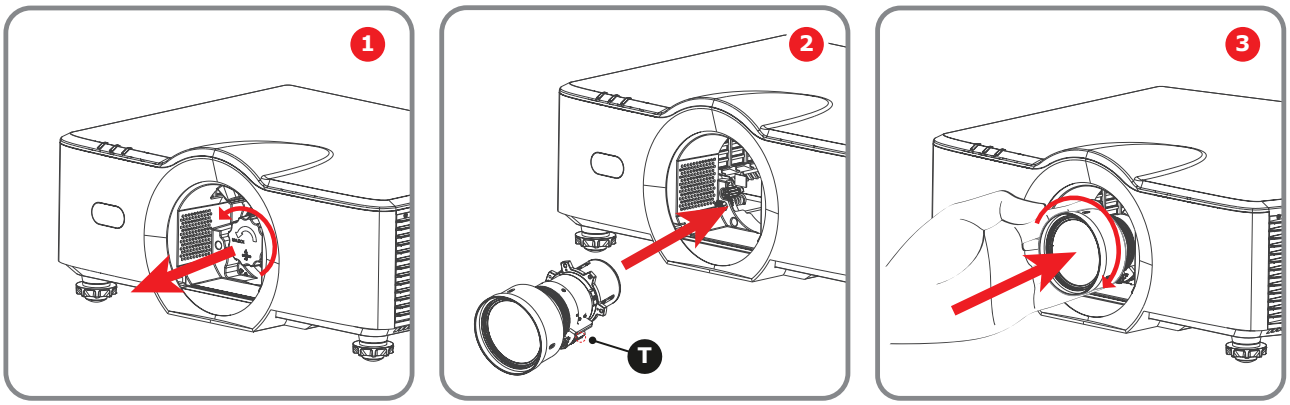


Image 3–2

4. In case the projector is mounted above peoples head, then install the lens safety cable. For instructions see procedure “Installing the lens safety cable”, page 34.

CAUTION: Do not transport the projector with any lens installed.

3.3 Installing the lens safety cable

When to use the lens safety cable

The lens safety cable must be used in any circumstance where the projector is mounted above people. Do this to secure the mounted lens in the lens holder.

Content of the lens safety cable kit (R9801196)

- Safety Cable (750 mm, Ø3 mm)
- Cable clamp M4 (U-bolt)
- Shackle 7x70 mm
- 20 x Cable clip (16x16 mm, Ø4 mm)[2]

Image 3–3

How to install the lens safety cable

1. Ensure that the safety cable and its accessories are in good condition (not damaged)
2. Paste four cable clips on the lens body between motor block and lens flange as illustrated (reference 1). Orient the open side of the clips towards the front of the lens.

2. Only four pieces are needed to assemble the safety cable to a lens. When the safety cable is used on another lens, you should not remove the cable clips. Instead, use four new ones. There are enough cable clips in the kit to secure up to five different lenses.

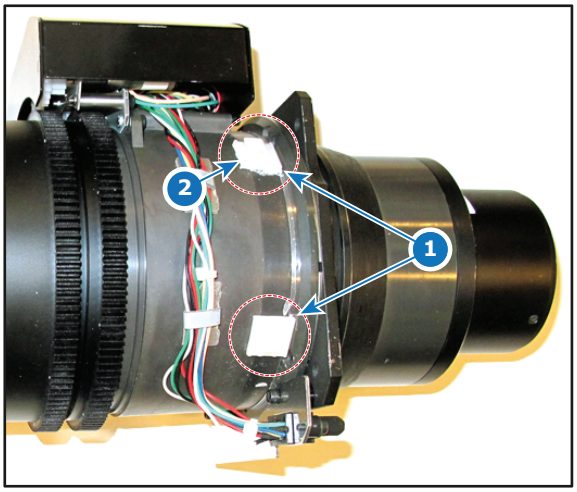


Image 3–4

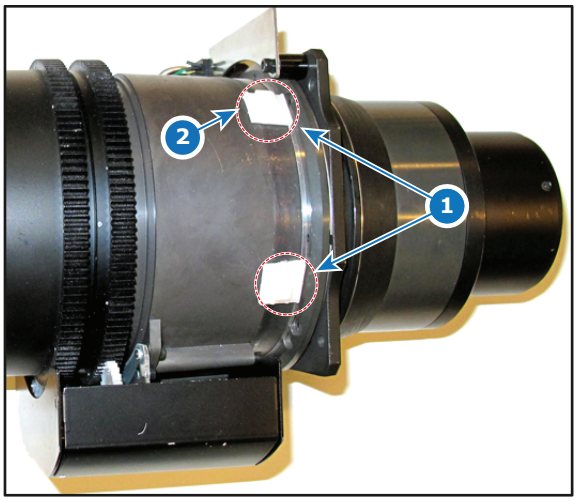


Image 3–5

3. Snap the first loop end of the safety cable into one of the following clips and let the loop end point downwards.
   1. Configuration A: Use the upper clip on the side of the cable bundle (reference 2, Image 3–4).
   2. Configuration B: Use the upper clip on the non-wired side (reference 2, Image 3–5).
4. Slide the rest of the cable around the lens counterclockwise. Click the cable into every clip it passes in this loop.

   Note: Make sure the cable passes between the lens and the cable bundle.

5. Slide the cable through the loop end at the beginning of the cable to create a lasso..

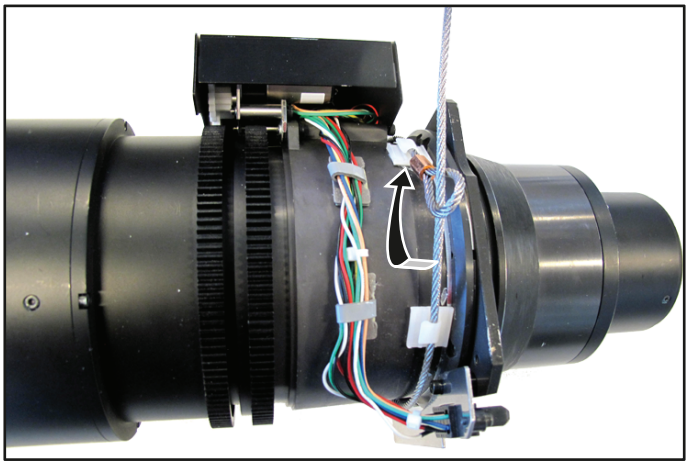


Image 3–6 Example of configuration A

6. Pull the lasso tight around the lens body and install the U-bolt on the lens holder, with the open ends oriented outwards (reference 3). Make sure that both a part of the loop end and the outgoing part of the safety cable are placed in the enclosure.

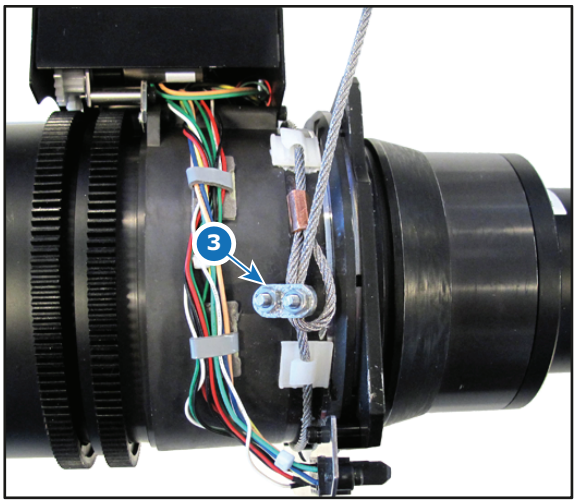


Image 3–7 Example of Configuration A

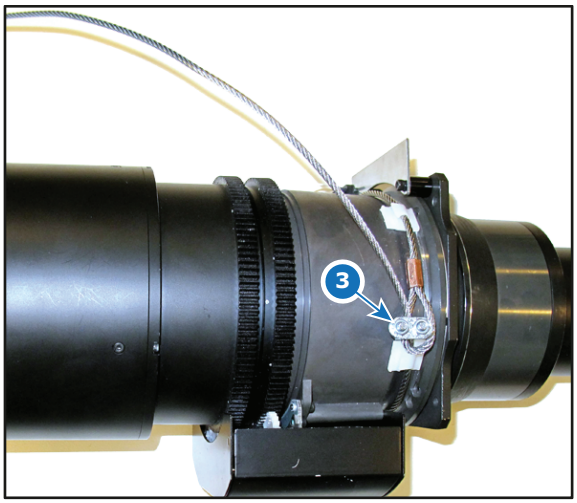


Image 3–8 Example of Configuration B

7. Close the U-bolt and tighten it.

Note: Make sure the safety cable is tightened around the lens before tightening the U-bolt nuts.

8. Place the shackle through the free loop end of the safety cable.
9. Connect the shackle on the truss or rigging frame.

Caution: The safety cable is mounted as backup so that the drop distance is as small as possible. Keep the possible drop distance of the lens as short as possible!

How to mount the cable to a short barrel lens

1. Paste two cable clips on both sides of the lens as illustrated (reference 1). Orient the open side of the clips towards the outside of the lens.

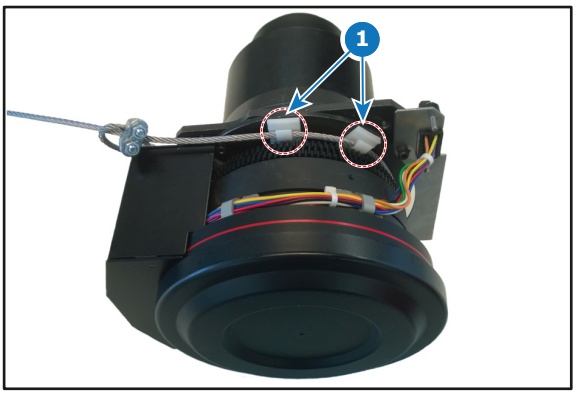


Image 3–9

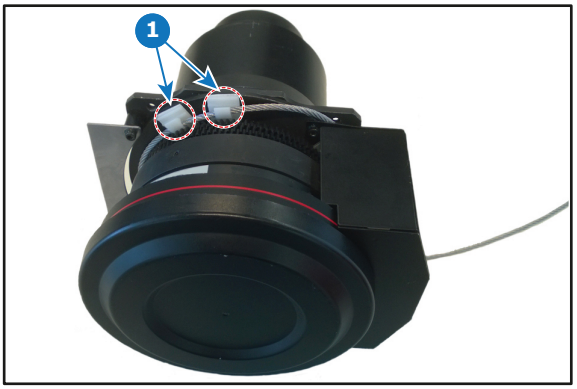


Image 3–10

2. Paste two extra cable clips on the motor block of the lens. Orient the open side to the outside of the lens.

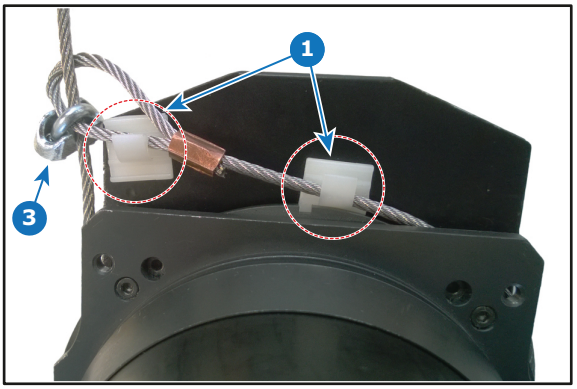


Image 3–11

3. Carefully slide the safety cable through the cable clips. Make sure the cable is placed between the motor block and the cover plate.
4. Slide the cable through the loop end at the beginning of the cable.
5. Mount a U-bolt on the cable, with the open ends oriented outwards (reference 3, Image 3–11). Make sure that both a part of the loop end and the outgoing part of the safety cable are placed in the enclosure.
6. Close the U-bolt and tighten it.

Note: Make sure the safety cable is tightened around the lens before tightening the U-bolt nuts.

The result should look similar to the following example.

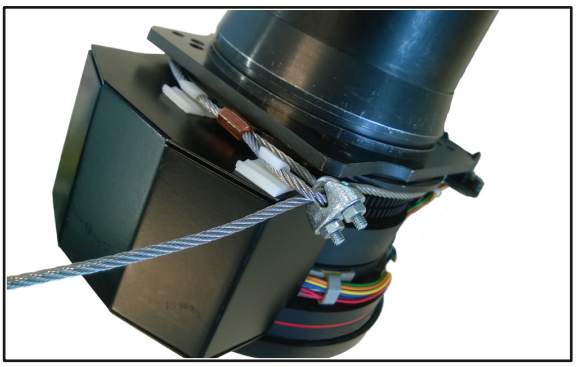


Image 3–12

7. Lead the cable end with the shackle around rigging frame bar or truss bar
8. Snap the shackle to the straight part of the cable.

   Secure the shackle by screwing the safety ring of the shackle over the open end.

3.4 Connecting the projector with the power net

CAUTION: Use only the power cord provided with the projector.

CAUTION: Ensure that the power net meets the power requirements of the projector.

How to connect with the power net

1. Ensure that the power switch stands in the '0' (OFF) position (reference 1).

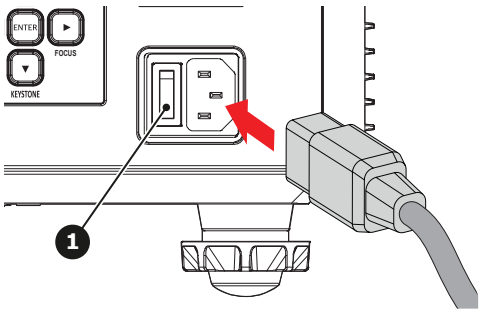


Image 3–13

2. Plug in the mains cord in the power input socket of the projector.
3. Connect the other side of the mains cord with the power net.
4. Power on the AC switch (reference 1) and wait until the **POWER** button on the control panel is solid red.

3.5 Connecting to a computer or laptop

Wiring diagram

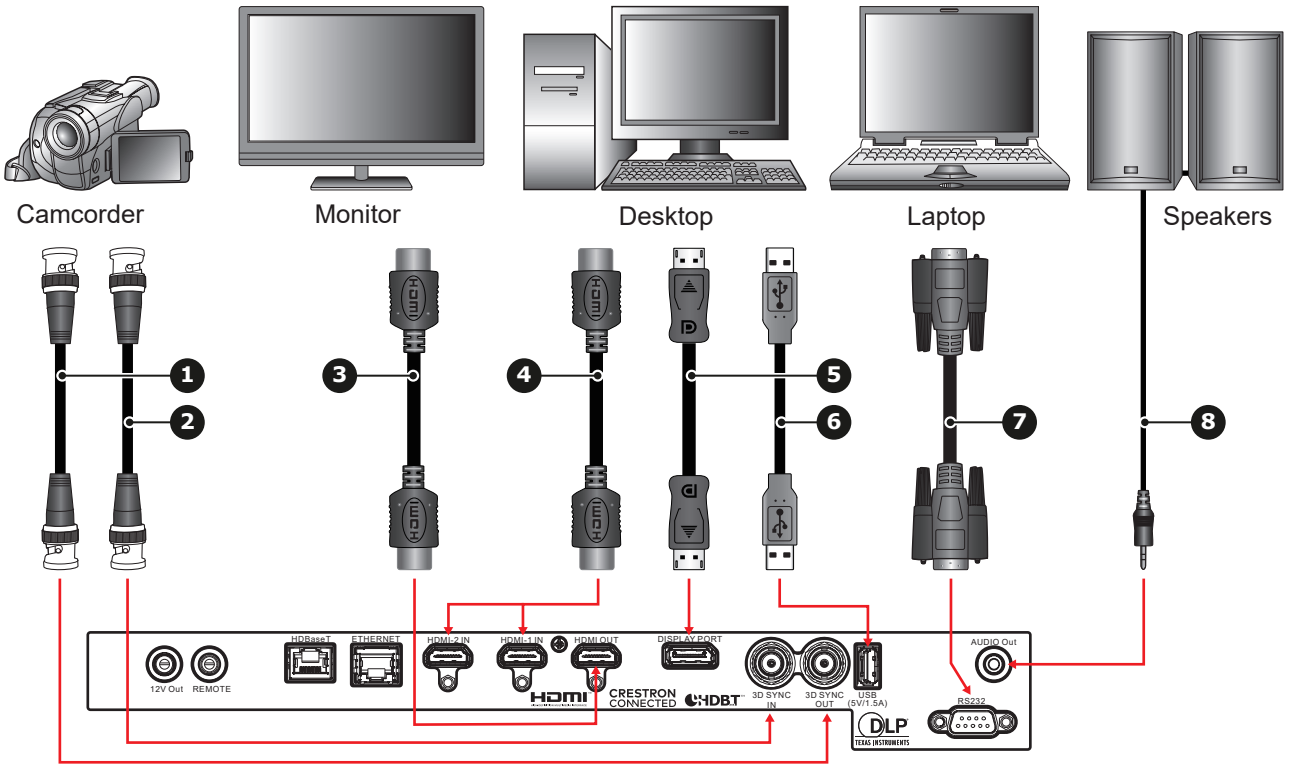


Image 3–14

1 3D Sync cable
2 3D Sync cable
3 HDMI cable
4 HDMI input cable
5 DisplayPort cable
6 USB cable
7 RS232 cable
8 Audio cable

The diagram shows the cables/connectors that may be used to connect to various devices.
Due to the difference in applications for each country, the accessories required in some regions may be different from those shown.
This diagram is for illustrative purposes only, and does NOT indicate that these accessories are supplied with the projector.

3.6 Connecting to video sources

Wiring diagram

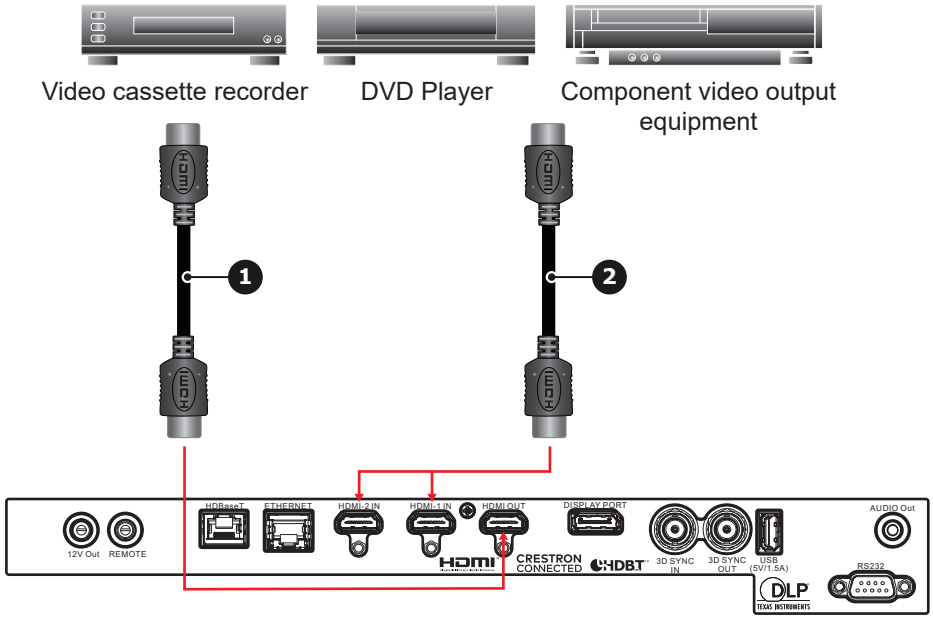


Image 3–15

1 HDMI cable
2 HDMI cable

The diagram shows the cables/connectors that may be used to connect to various devices.
Due to the difference in applications for each country, the accessories required in some regions may be different from those shown.
This diagram is for illustrative purposes only, and does NOT indicate that these accessories are supplied with the projector.

3.7 Ceiling mount installation

Requirements

To prevent damage to your projector, please use a Barco recommended ceiling mount. Ensure the screws used to install the mount to the projector meet the following specifications:

- Screws: M4 x 10 (four pieces)
- Mounting holes (reference 1, see following illustration)

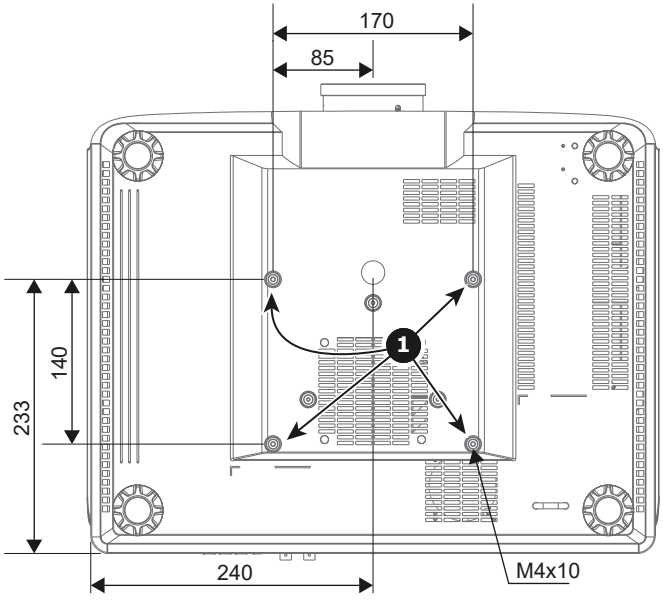


Image 3–16 Dimensions given in mm

1 Mounting holes

Damage resulting from incorrect installation will void the warranty.

3.8 Software update

CAUTION: Do not power off or unplug the projector while the software update is ongoing.

How to update the software using the web interface.

1. Power on the projector.
2. Download the latest firmware file (format .iso) from Barco's website. The firmware can be downloaded for free from Barco's website, (URL: http://www.barco.com). Click on *myBarco* and log in to get access to secured information. Registration is necessary.

   If you are not yet registered, click on *New to myBarco* and follow the instructions. With the created login and password, it is possible to log in where you can download the software.
3. Connect your computer to the projector, using a LAN cable.
4. Browse to the IP address of the projector (e.g. the default 192.168.1.100).

   The login screen will be displayed.

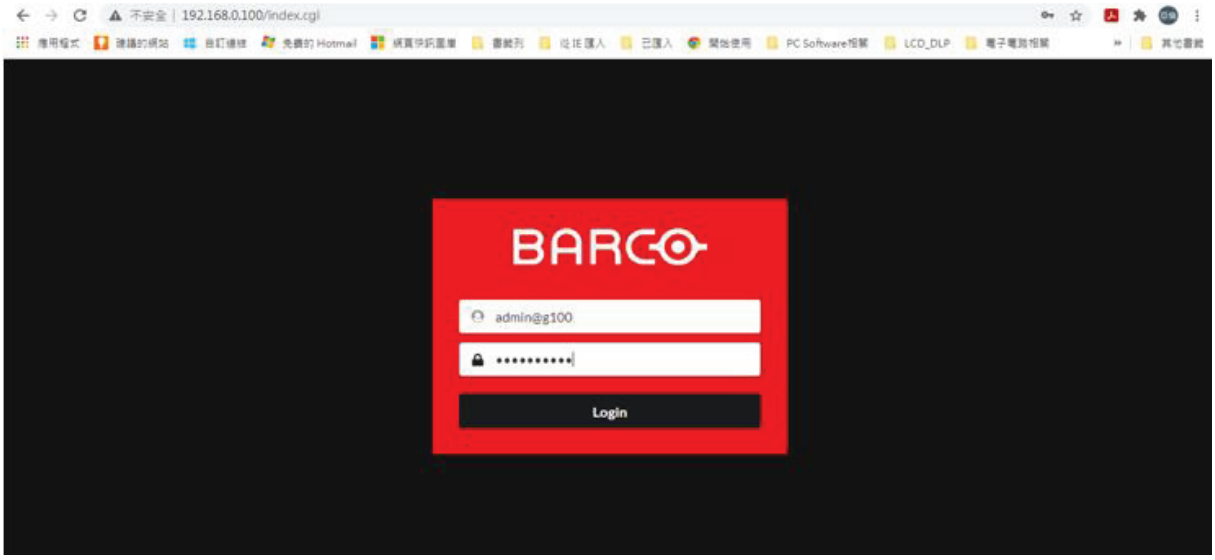


Image 3–17 Example of the login page

5. Log in, using the following (default) settings:
   - Username: admin@g50
   - password: admin@g50

   Tip: It is advised to change the username and password once you have logged in. It is also advised to use a strong password.
6. Navigate to System Settings > Upgrade (reference 1).

   The upgrade page will be displayed.

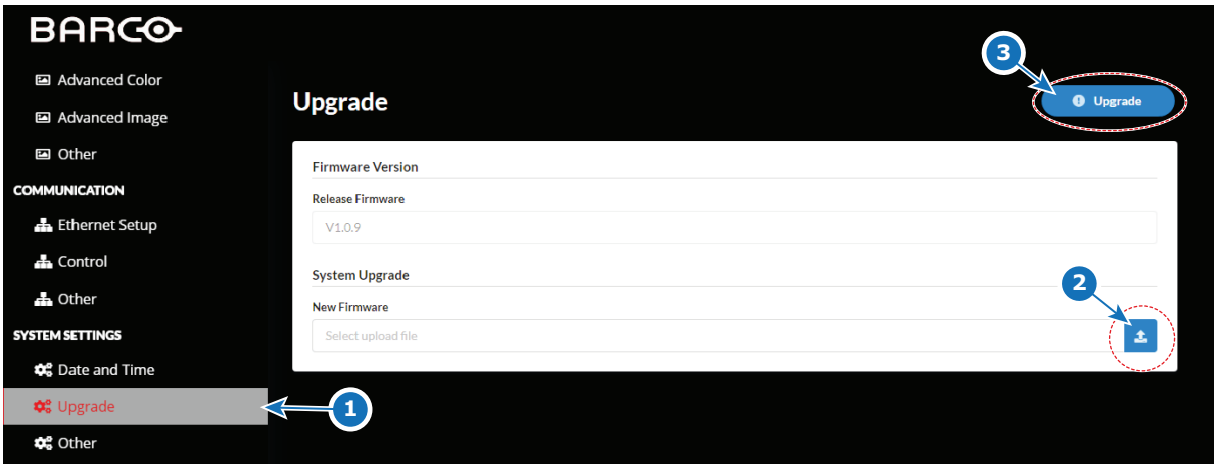


Image 3–18 Example of the upgrade page

7. Browse to the desired update package (format .iso) and confirm (reference 2). Click **Upgrade** (reference 3) to start the upgrade process.

   The update file will be transferred to the projector and installed. The projector will reboot when completed.

Take note that the update process can take a long time to complete.

Powering On/Off the projector

4

4.1 Powering On the projector 46
4.2 Power off the projector 48

This chapter assumes that the power cord and (all) signal cables are securely connected. For detailed instructions see installation manual.

4.1 Powering On the projector

How to power On the projector

1. Power on the AC switch (1) and wait until the power button on the control panel is solid red.

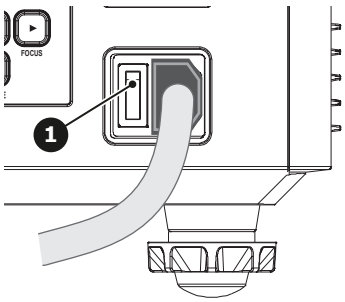


Image 4–1

2. Turn on the projector by pressing the POWER button (2) on the control panel or the ON key (3) on the remote control.

   The status LED (4) will flash orange. The startup screen will display and the status LED will turn to solid green.

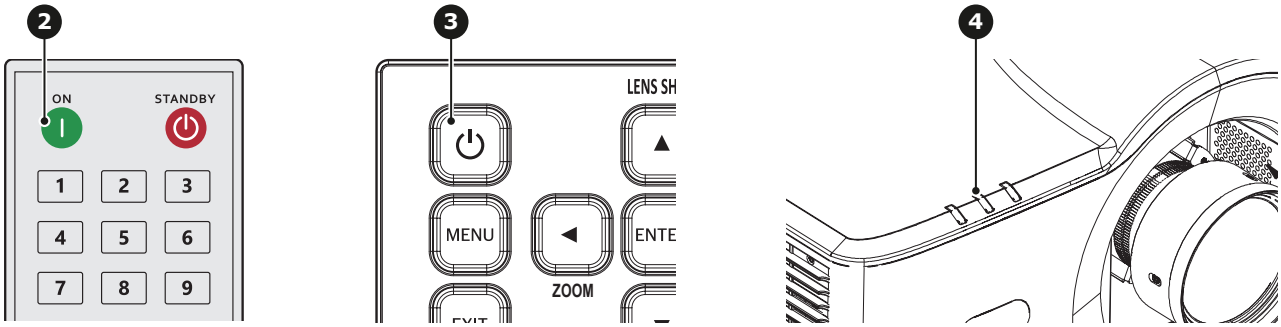


Image 4–2

3. Is this the first time that the projector starts up? (First installation or after a factory reset)
   ► If yes, a popup window appears with the request to accept Barco's End User License Agreement (EULA). Select CONTINUE to accept the EULA terms and to proceed using the projector. If you do not accept the EULA terms (CANCEL), the projector will be switched off.

   Note: Use the remote control or control panel to select your choice.

Image 4–3

   Note: The *EULA* can be downloaded from the Barco website.

4. Turn on your source. The projector detects the source you selected and displays the image.

   Note: If you connect multiple input sources at the same time, press the **Input** key on the control panel or on the remote control to switch inputs.

WARNING: Do not look directly into the lens when the projector is on. The strong light may cause permanent eye damage.

4.2 Power off the projector

How to power off the projector

1. Press the **Standby** button (reference 2) on the remote control or the **Power On/Off** button (reference 3) on the control panel.

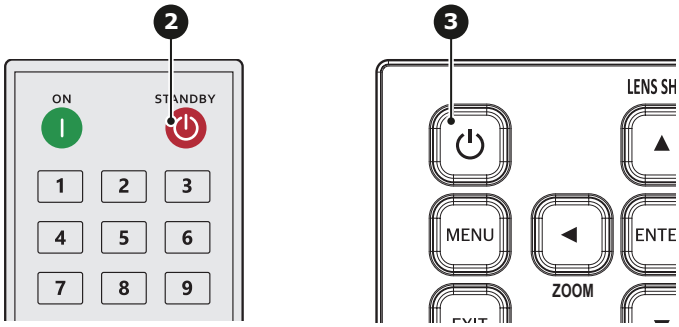


Image 4–4

A confirmation request will be prompted on the screen.

2. Press the same button again to confirm.

Note: If not confirmed after five seconds, the confirmation request will disappear and the projector will remain on.

CAUTION: Don't power on the projector again immediately after entering standby mode.

CAUTION: Don't switch off or disconnect the projector from the power net until the cooling down cycle is completed.

Adjusting the projected image

5

5.1 Adjusting the projector’s position....50
5.2 Adjusting the lens offset....51
5.3 Boresight (Scheimpflug) adjustment....53

5.1 Adjusting the projector’s position

Positioning the projector

To determine where to position the projector, consider the size and shape of your screen, the location of your power outlets, and the distance between the projector and the rest of your equipment. Here are some general guidelines:

- Position the projector on a flat surface at a right angle to the screen.
- Position the projector to the desired distance from the screen. The distance between the lens and the screen, the zoom settings, and the video format determine the size of the projected image. For projection distances of each lens, see “Lenses”, page 29.
- 360 degree free orientation installation:

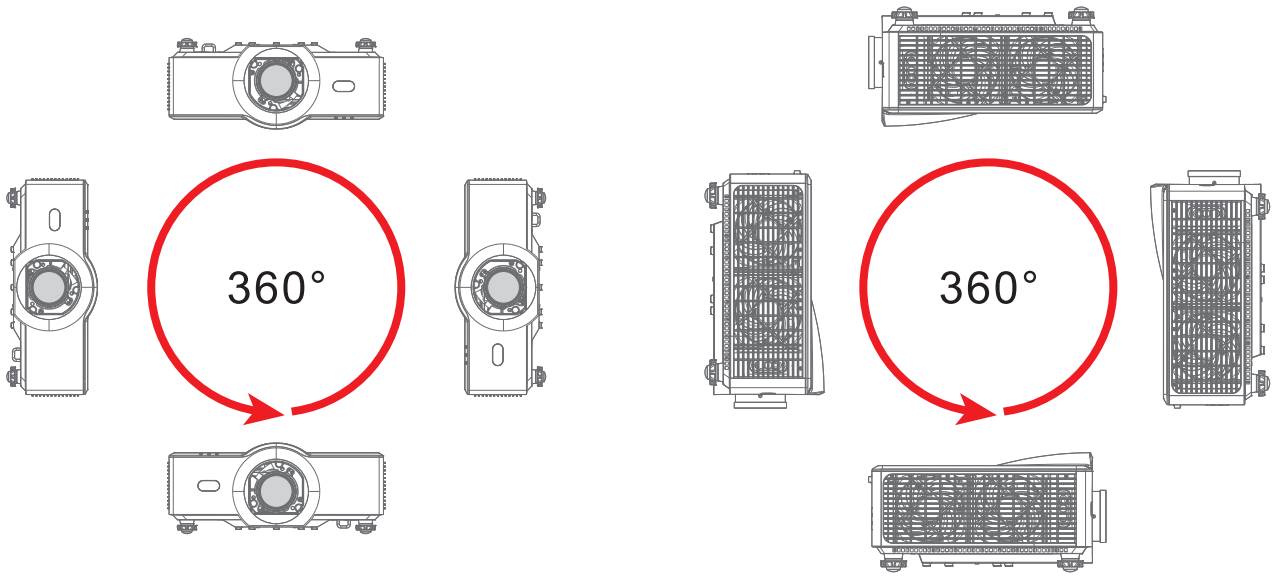


Image 5–1

5.2 Adjusting the lens offset

Overview

Adjusting the lens position to determine the image position on the screen. The veritcal lens offset (shift) range for G50 projector is +/-50%, and the horizontal lens offset (shift) range is +/-15%. The offset range is calculated in accordance with industry standards, with which the image offset is calculated by full image size. Please refer below for the image offset (shift) range for G50 projectors.

Vertical Image Offset: 0%

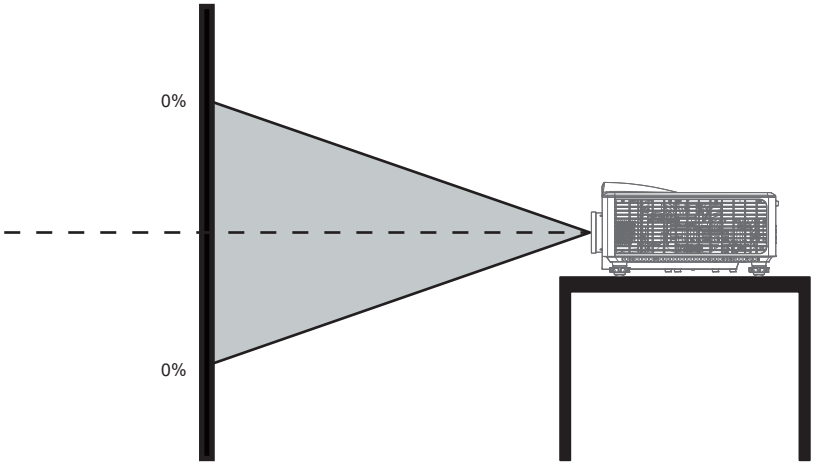


Image 5–2

Vertical Image Offset: +/-60%

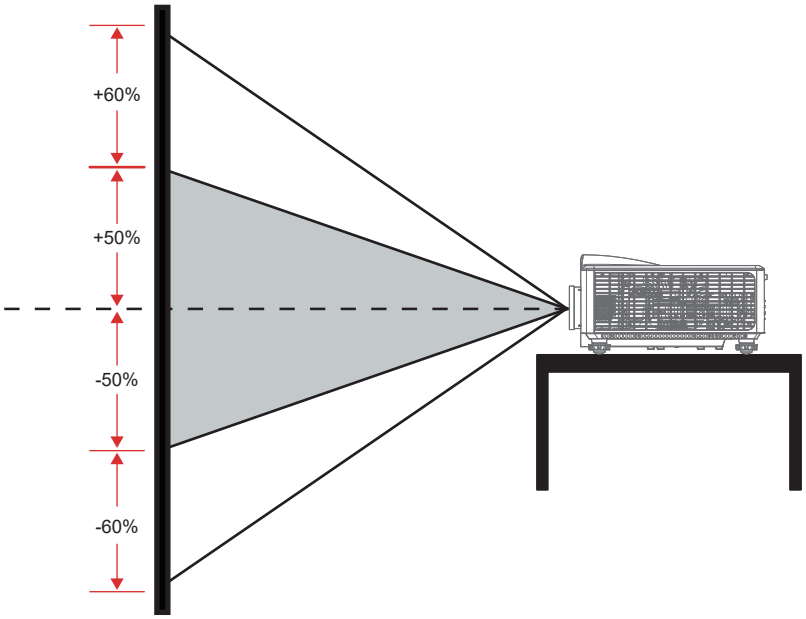


Image 5–3

Horizontal Image Offset: +/-20%

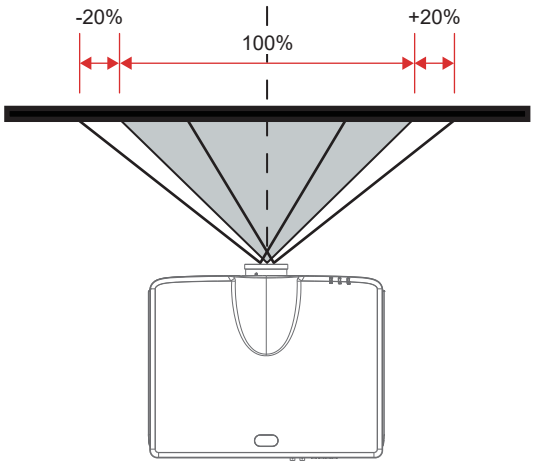


Image 5–4

5.3 Boresight (Scheimpflug) adjustment

What is Boresight (Scheimpflug)

The lens holder has to be adjusted so that the “sharp focus plane” of the projected image falls together with the plane of the screen (Fp1→Fp2). This is achieved by changing the distance between the DMD plane and the lens plane (Lp1→Lp2). The closer the lens plane comes to the DMD plane the further the sharp focus plane will be. It can occur that you won't be able to get a complete focused image on the screen due to a tilt (or swing) of the lens plane with respect to the DMD plane. This is also known as Scheimpflug's law. To solve this the lens plane must be placed parallel with the DMD plane. This can be achieved by turning the lens holder to remove the tilt (or swing) between lens plane and DMD plane (Lp3→Lp4).

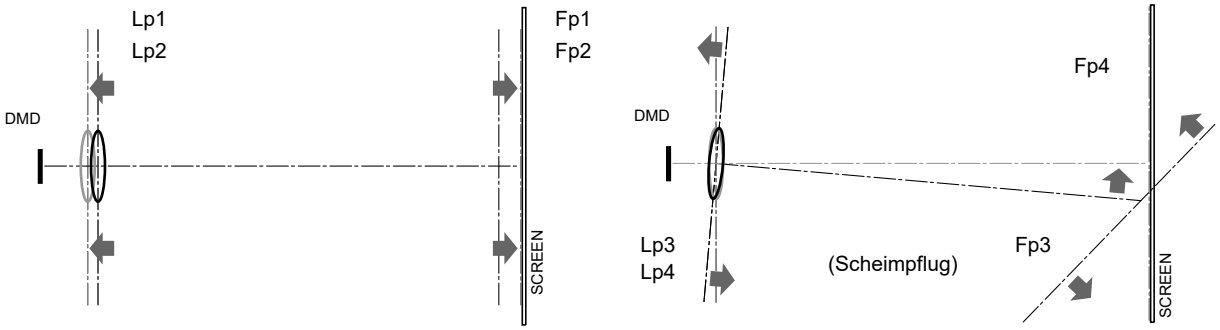


Image 5–5 Boresight (Scheimpflug) principle

Required tools

- Allen wrench 4 mm
- Boresight extenders
- Boresight L shape socket tool

Preparations

1. Choose the test pattern of the OSD. Switch to full screen mode.
2. Prepare the test area. Verify that the throw ratio of the installed lens matches the requirements of the installation area (projection distance and screen size).
3. Check that the lens is correctly installed.
4. Zoom the lens to its widest opening (maximum image size on the screen).
5. Adjust the focus control to search for the best sharpness of the projected image
6. Is this a lens with an floating ring? E.g., G lens (0.65 - 0.75 : 1)[3].
   ► If yes, adjust the floating ring of the lens (see next chapter).

Adjust floating ring G lens (0.65 - 0.75 : 1)[3]

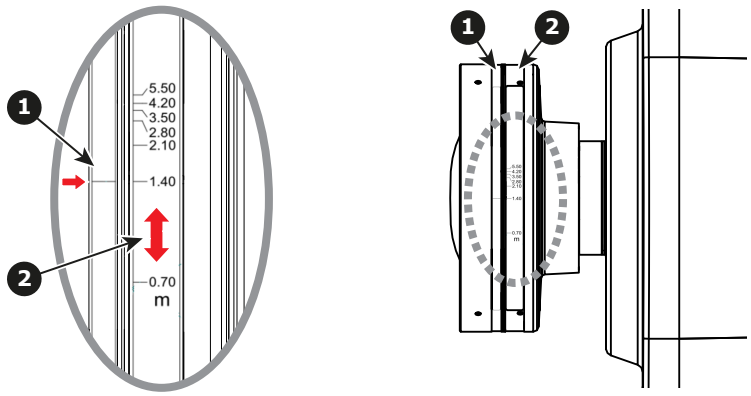


Image 5–6

3. Also applicable for the GC lens and GC+ lens in case these lenses are supported on this projector model.

1 Fixed ring
2 Floating ring

- Manual adjust the floating ring before adjust Zoom & Focus for better optical performance.
- Scale on floating ring shows the projection distance.
- The projection distance is from projector lens to screen.

Example:

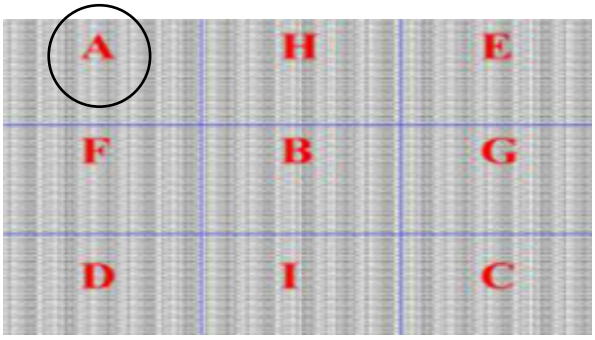
When the distance between screen and projector lens is 1.4 meter, adjust floating ring scale to “1.40” to have better performance.

Special Boresight tools required for G lens (0.65 - 0.75 : 1)³. Tools are included in the box of the lens.
Boresight extenders (with red rubber ring), 3 pieces.

Boresight L shape socket tool.

Adjust Boresight

1. Is this a lens with an floating ring? E.g., G lens (0.65 - 0.75 : 1)³.
   ► If yes, install the 3 Boresight extenders on the screws ① , ② and ③.
2. If zone C is in focus on the screen, please check the focal plane of zone A.
   - If clear position is just on the screen→ No need to adjust.
   - If clear position is out of the screen(close to projector), rotate screw ① CCW and then screw ②&③ CW for half amount that① rotated. → repeat until both A and C are clear. (e.g. turning ① CCW in a circle, then turn ②&③ CW in half circle).
   - If clear position is in the screen(far from projector), rotate screw ① CW and then screw ②&③ CCW for half amount that① rotated. → repeat until both A and C are clear.



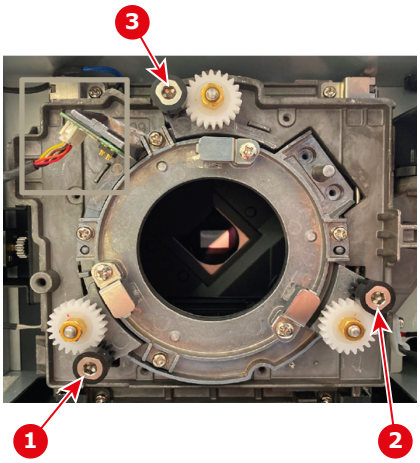


Image 5–7

Note: This process may cause the other areas of the image to slide out of focus. This is totally normal.

3. If zone D is in focus on the screen, please check the focal plane of zone E.
   - If clear position is just on the screen→ No need to adjust.
   - If clear position is out of the screen(cloe to projector), rotate screw ② CCW and then screw ① &③ CW for half amount that ② rotated. → repeat until both D and E are clear. (e.g. turning ② CCW in a circle, then turn ① &③ CW in half circle)
   - If clear position is in the screen(far from projector), rotate screw ② CW and then screw ① &③ CCW for half amount that ② rotated. → repeat until both D and E are clear.

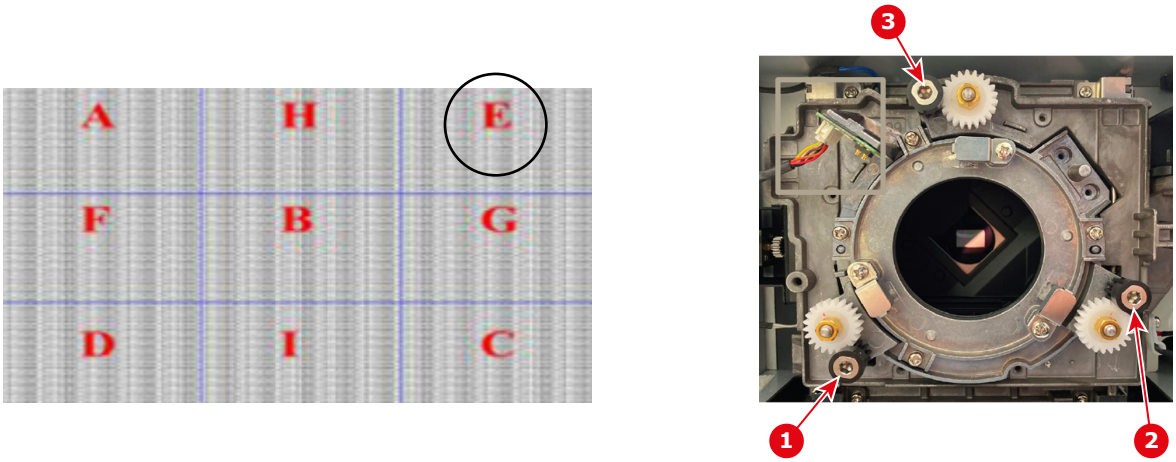


Image 5–8

Note: This process may cause the other areas of the image to slide out of focus. This is totally normal.

4. If zone H is in focus on the screen, please check the focal plane of zone I.
   - If clear position is just on the screen→ No need to adjust.
   - If clear position is out of the screen(cloe to projector), rotate screw ③ CCW and then screw ① & ② CW for half amount that ③ rotated. → repeat until both H and I are clear. (e.g. turning ③ CCW in a circle, then turn ① & ② CW in half circle).
   - If clear position is in the screen(far from projector), rotate screw ③ CW and then screw ① & ② CCW for half amount that ③ rotated. → repeat until both H and I are clear.

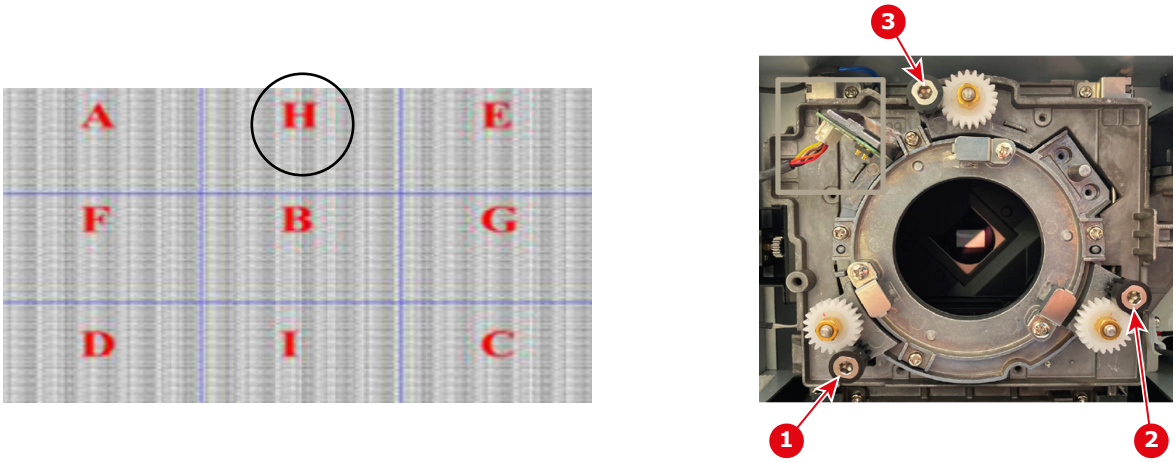


Image 5–9

Note: This process may cause the other areas of the image to slide out of focus. This is totally normal.

5. After the above adjustment of the viewing axis, the projected image from zone A to zone I still cannot achieve a clear focus on the screen. Please turn the boresight screws ① to ③ counterclockwise to the end (STOP), and then turn clockwise 2 circles to the design value position. To improve the focus, go to step 2 and repeat the complete procedure.

G lens (0.37 - 0.4 : 1) UST 90°

6

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UST 90° sales kit

The sales kit contains:

- The UST lens
- The UST lens support
- Safety cable

The UST lens must always be mounted with the UST lens support and the safety cable.

6.1 About the UST lens

Possible mounting positions

This lens can be mounted on the G50 series of projectors and can be mounted in two positions: facing upwards and to the left. The motor housing must be turned to the correct position before the lens is mounted in the projector.

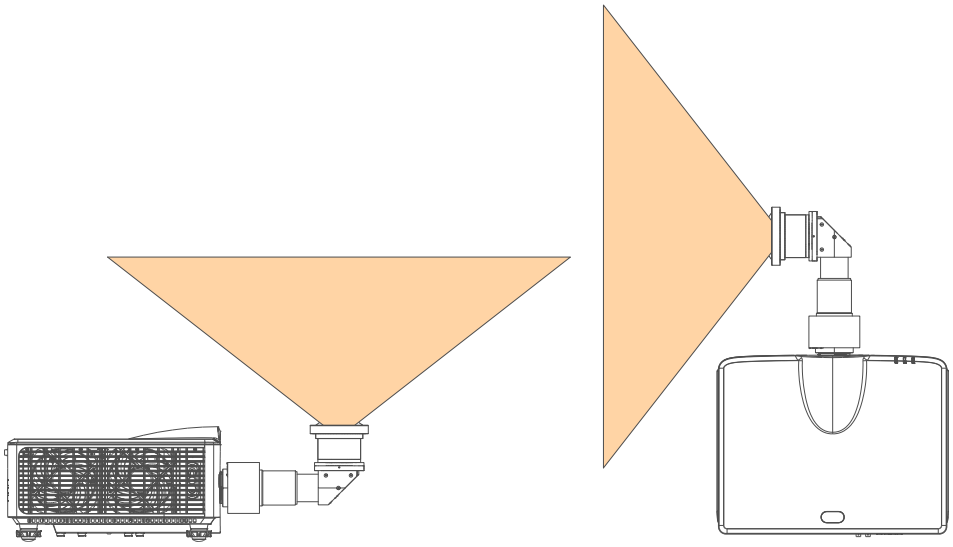


Image 6–1

6.2 Lens rotation mechanics

Overview

The Lens body can be rotated against the Interface unit when eight M3 cap screws are removed.

It can be refastened to the Interface unit in increments of 90°.

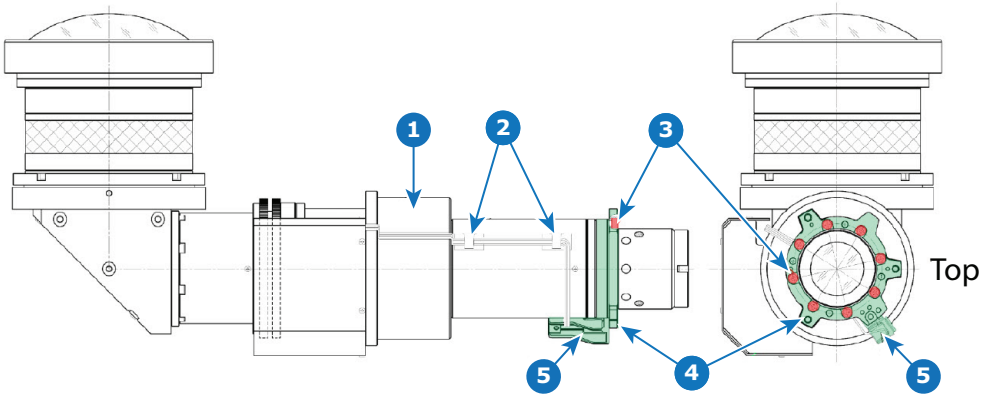


Image 6–2

1 Lens body
2 Wire clamper
3 M3 cap screws (eight pieces)
4 Interface unit
5 PCBA module

Apply some glue on the head of the screws to prevent loosening when cap screws refastened.

Standard position

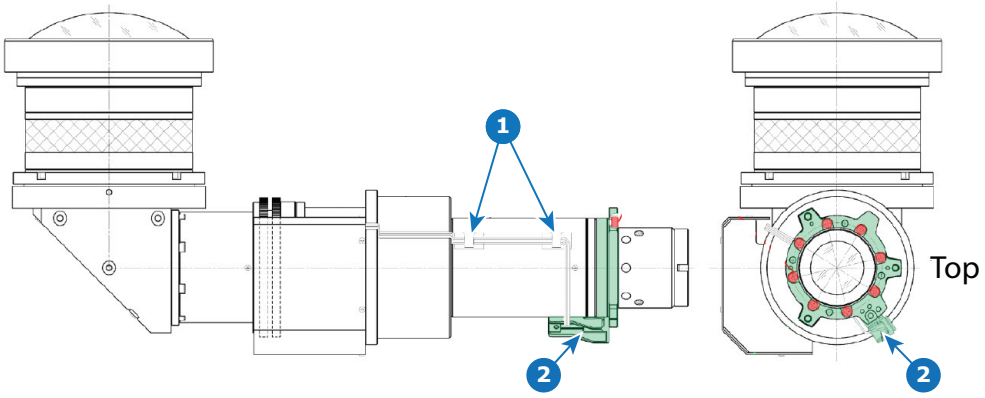


Image 6–3 Standard position

1 Wire clamper
2 PCBA module

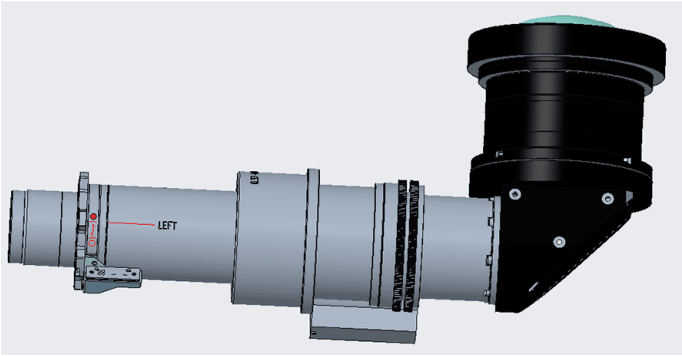


Image 6–4 Left mark on the lens

For left projection, make sure the red dot on the interface is next to the “Left” marking on the lens.

Image 6–5

1 Wire routing
2 Projection orientation : left

90° rotated

To go from the standard position to a 90° rotated position, turn out the eight M3 screws.

Slide the interface a few mm to the backside of the lens.

Rotate the interface 90° until the red dot on the interface is next to the ‘Up’ mark on the lens body.

Slide the interface back to the front of the lens to re-engage focusing gear and motor gear.

Drive in eight M3 cap screws with some glue.

The lens is ready to be mounted in the projector.

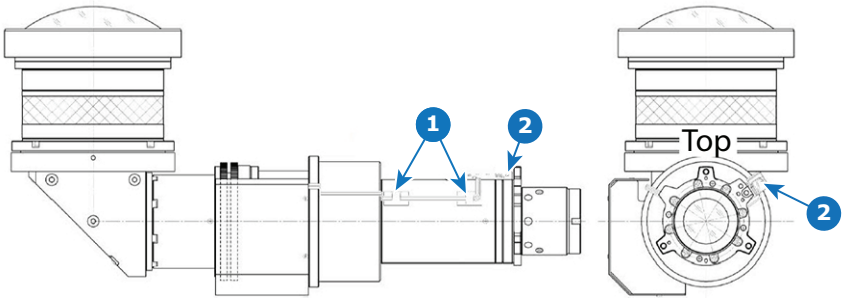


Image 6–6 90° rotated position

1 wire clamper
2 PCBA module

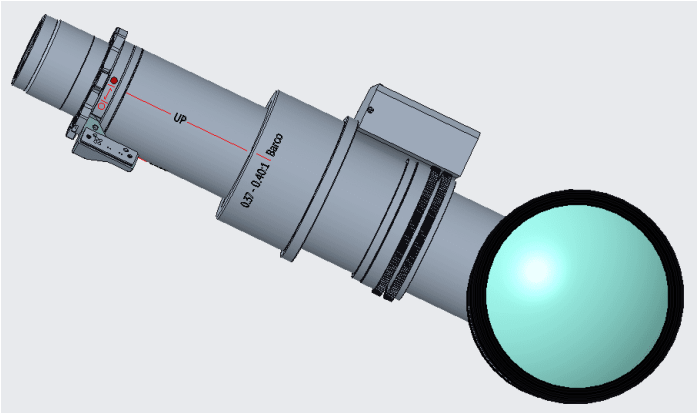
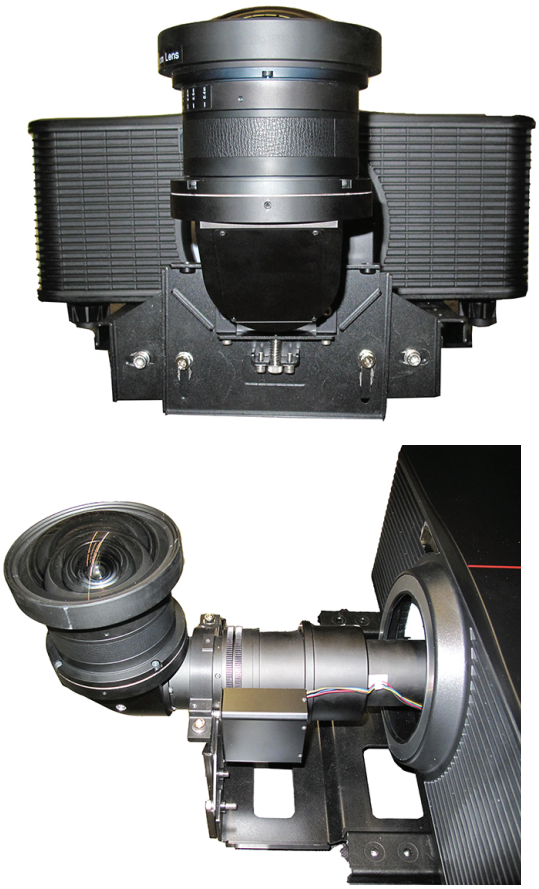


Image 6–7 Up mark on the lens

1



2

Image 6–8

1 Wire routing
2 Projection orientation : Up

6.3 Lens support installation

Components

Image	Description	Quantity
	Beam	2
	Base plate	1
	Lens holder module	1
	Lens clamp module	1
	Safety bar	1
	Socket head screw M6x12	4
	Socket head screw M6x22	8
	Spring washer M6	8
	Washer M6	10
	Socket head screw M4x10	5

Required tools

- Allen wrench 5 mm
- Allen wrench 4 mm
- Allen wrench 3 mm

Installation steps

1. Turn the projector up side down. To avoid damage, lay it on a blanket or a foam rubber.

   Mount both beams on the bottom of the projector. Use 2 bolts M6x12 and 2 washers M6 for each beam.

   Tighten with a torque between 3.5 and 9.8 Nm

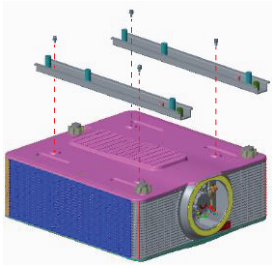


Image 6–9

2. Mount the base plate on the projector beams. Use 4 bolts M6x22 with 4 spring washers M6 and 4 washers M6 (reference 1 in Image 6–10). Insert the spring washer in between the screw head and the washer.

   Tighten with a torque between 3.5 and 9.8 Nm

   When the projector will be used in table mounting configuration, also turn in the four feet (reference 2 in drawing B).

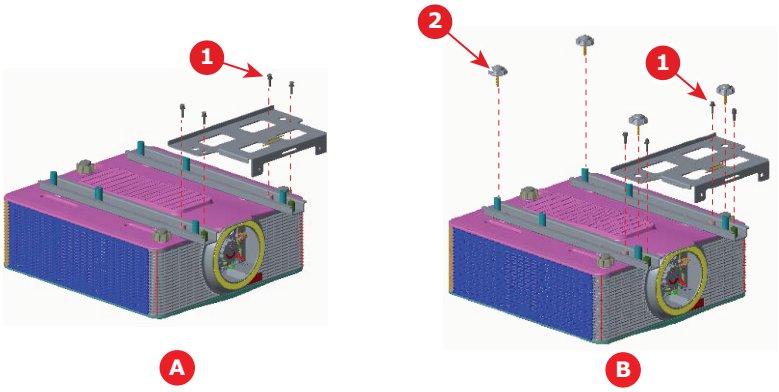


Image 6–10

3. Install the UST lens. Rotate the UST lens clockwise to lock the lens.

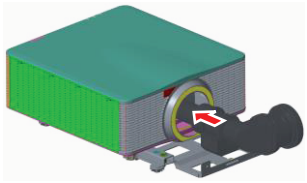


Image 6–11

4. The lens holder module is preassembled with screws 2 & 3. Start loosen screws 2 & 3 before starting the next step.

   Mount the lens holder module on the base plate with screws with reference 1 and 4 in Image 6–12. Drive them in partially. Use M6x22 screws and insert on each a spring washer M6 and washer M6.

   Note: Do not tighten the 4 bolts yet.

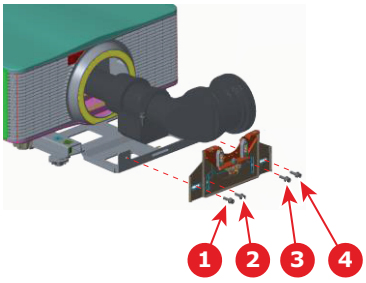


Image 6–12

5. For left projection: mount the lens clamp module on the lens holder module by inserting 2 screws M6x22, 2 spring washers M6 and 2 washers M6. Tighten with a torque between 3.5 and 9.8 Nm

Fixate the adapter plate with 3 screws M4x10 to the lens. To continue, go to step 8.

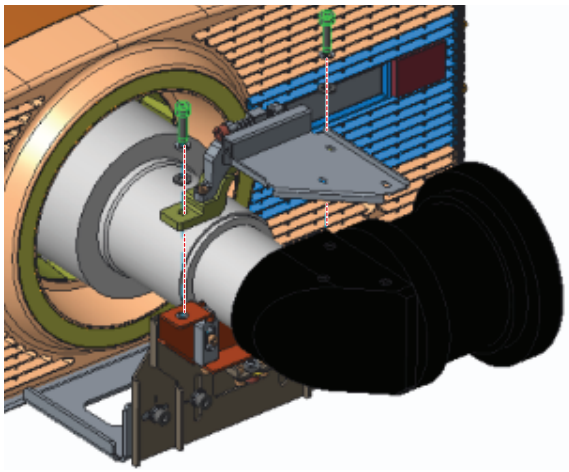


Image 6–13

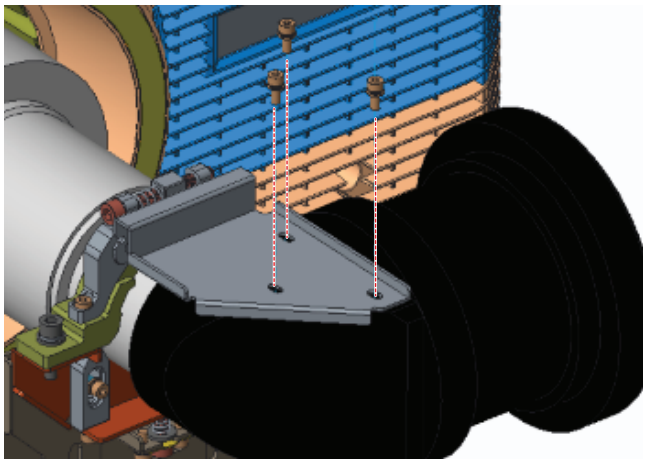


Image 6–14

6. For up projection: adapt the lens clamp module. Remove the lens clamp part from the lens clamp module by removing the 3 screws (Image 6–15. Just mount the lens clamp part on the lens holder module using 2 screws M4x10 (Image 6–16. Tighten with a torque between 3.5 and 9.8 Nm

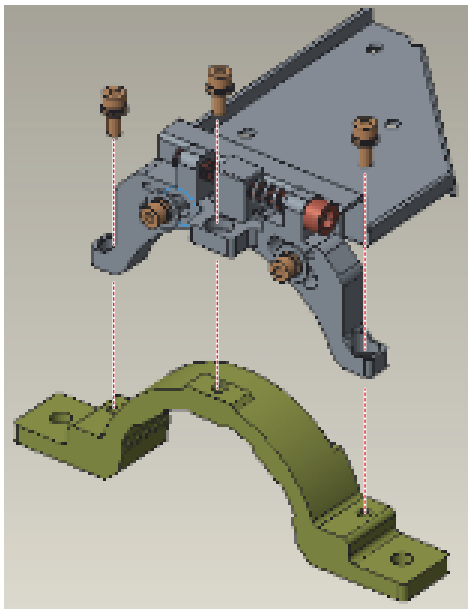


Image 6–15

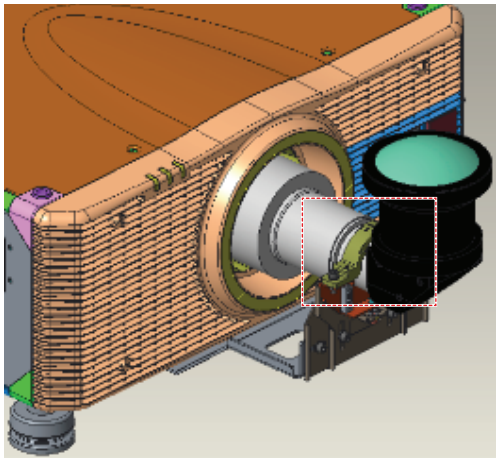


Image 6–16

7. Mount the safety bar with 2 screws M4x10 on the side of the lens (reference 1 & 2 in Image 6–17). This safety bar will be used to mount the safety cable. To continue, go to step 9

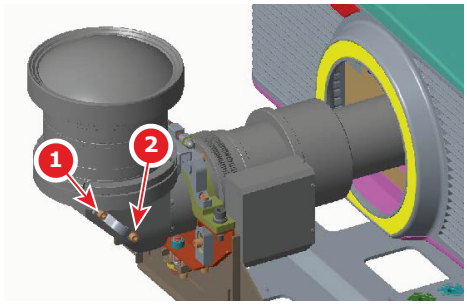


Image 6–17

8. Turn the projector up side down and mount the safety bar with 2 screws M4x10. This safety bar will be used to mount the safety cable.

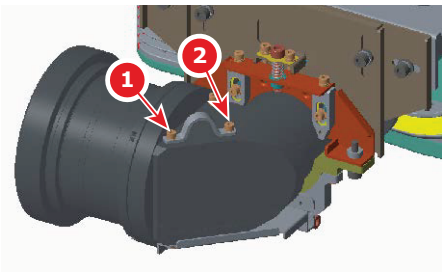


Image 6–18

9. Mount a safety cable through the eye on the safety bar.

   Slide the safety cable through the eye (reference 1 on Image 6–19) on the safety bar (reference 2 on Image 6–19) and then through the loop end at the beginning of the cable (reference 1 on Image 6–19).

   Install a U-bolt near to the safety eye (reference 3 on Image 6–19). Make sure that both a part of the loop end and the outgoing part of the safety cable are placed in the enclosure.

   Close the U-bolt and tighten it.

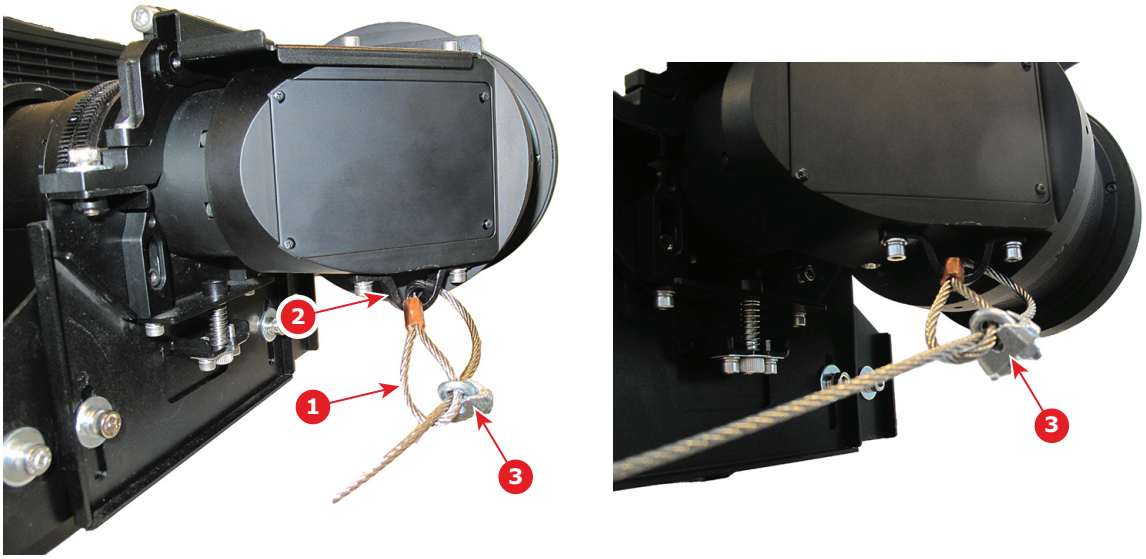


Image 6–19

10. Place the shackle through the free loop end of the safety cable.

    Connect the shackle on the truss or rigging frame. If necessary before connecting the shackle turn the cable a few times around the truss or rigging frame so the play is at a minimum.

    If it is not possible to the truss or rigging frame, mount it to the lens support. Turn it a few times around the support so the play is at a minimum and hook the shackle on the cable.

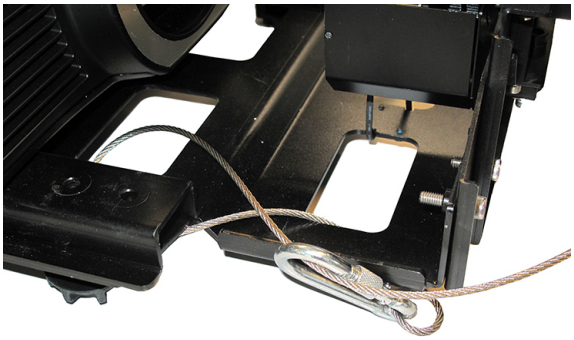


Image 6–20

6.4 UST lens support adjustment

About lens detection

G50 will detect the UST lens type while inserting the lens or reboot the projector. The image will automatically flipped as default and the lens memory function will be automatically disabled.

For any type of projector, do not use the memory recall functionality.

Please check the projected image, if required; please do manually flip the image while choosing the projection direction. Depending on your configuration, the lens memory function is automatically disabled when used with unsupported lens.

Location of the adjustment screws

Before adjusting the lens, make sure that screws 1 to 4 on the adapter are not tightened, and that screws 5 and 6 are in mid position.

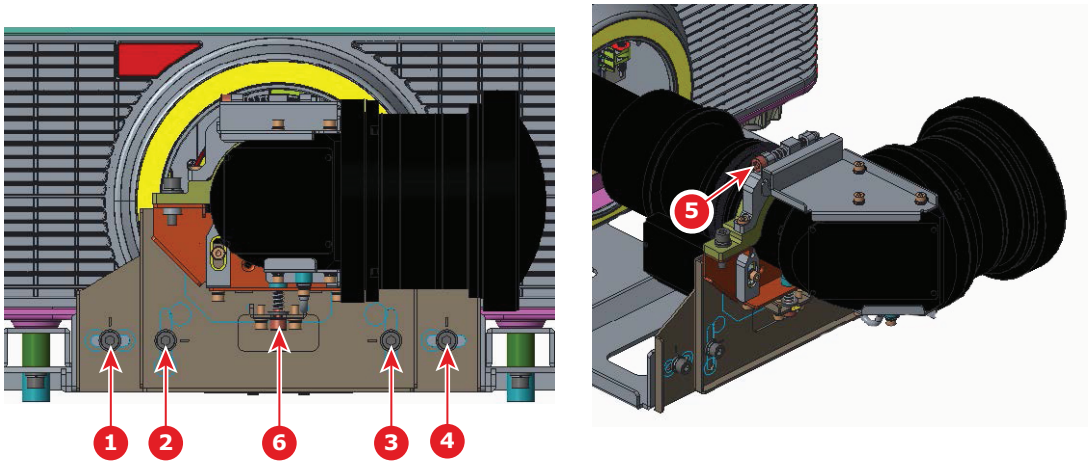


Image 6–21

How to adjust

1. Start up the projector and display a test pattern.

   Shift the UST lens to the target position.

   Vertically lift the lens by hand to have the image as good as possible (reference A).

   Tighten the vertical shifting screws 2 & 3 to secure this target position (reference B).

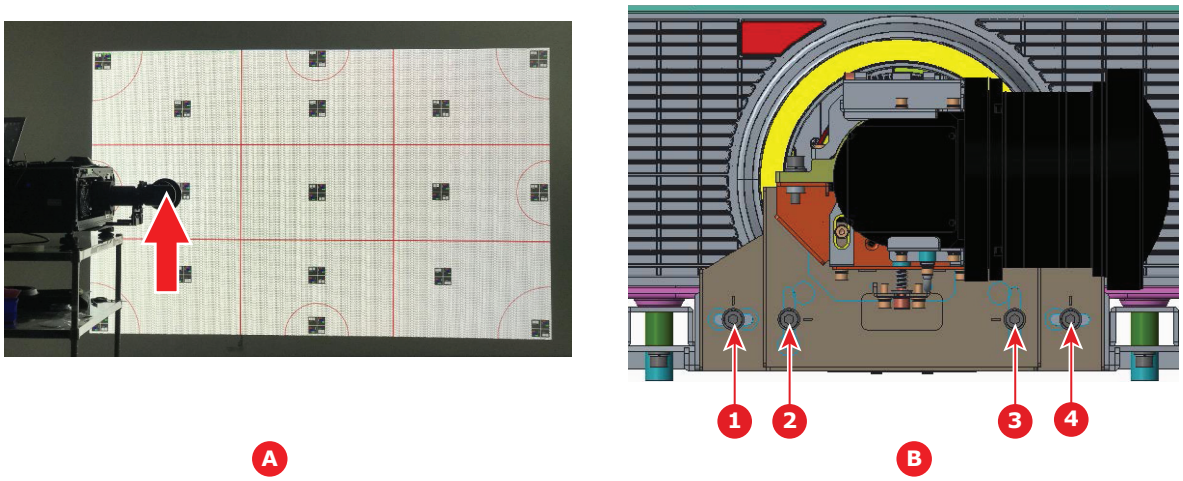


Image 6–22

2. Fine-tune the tilt of the projected image, using screw 5. Using this method, you can adjust ±7.5°.

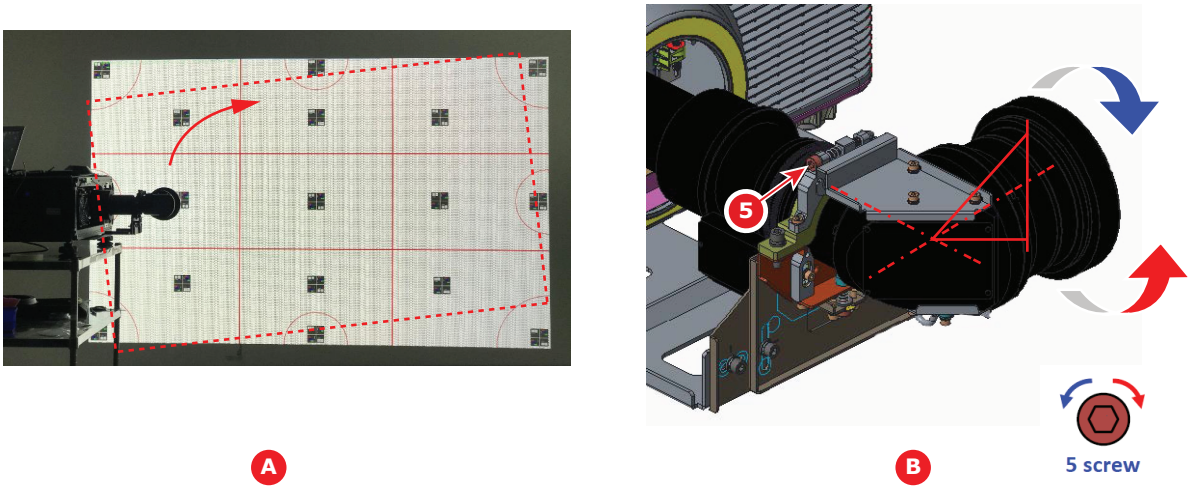


Image 6–23

Tip: Turning screw 5 clockwise will tilt the image counterclockwise. Turning the screws counterclockwise will tilt the image clockwise.

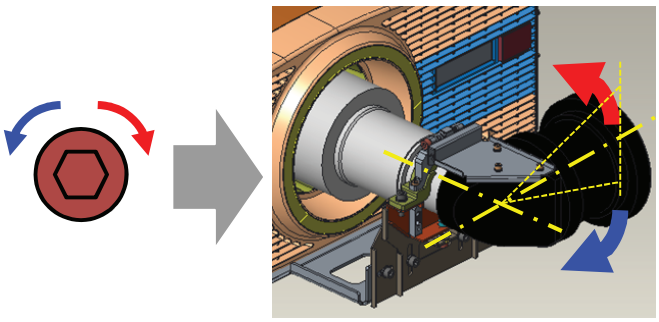


Image 6–24

3. Fine-tune the focus of the projected image vertically, using points A and B on the following image as reference points. The resolution/balance between both points should be the same.
   - Use the focus software feature to help focus the image.
   - Use adjustment screw 6 to help focus the image.
   - Use the focus ring at the end of the lens to help focus the image.
   - If necessary, loosen screws 2 and 3 a bit to push the lens a bit upward or downward to spot any variation in image quality.

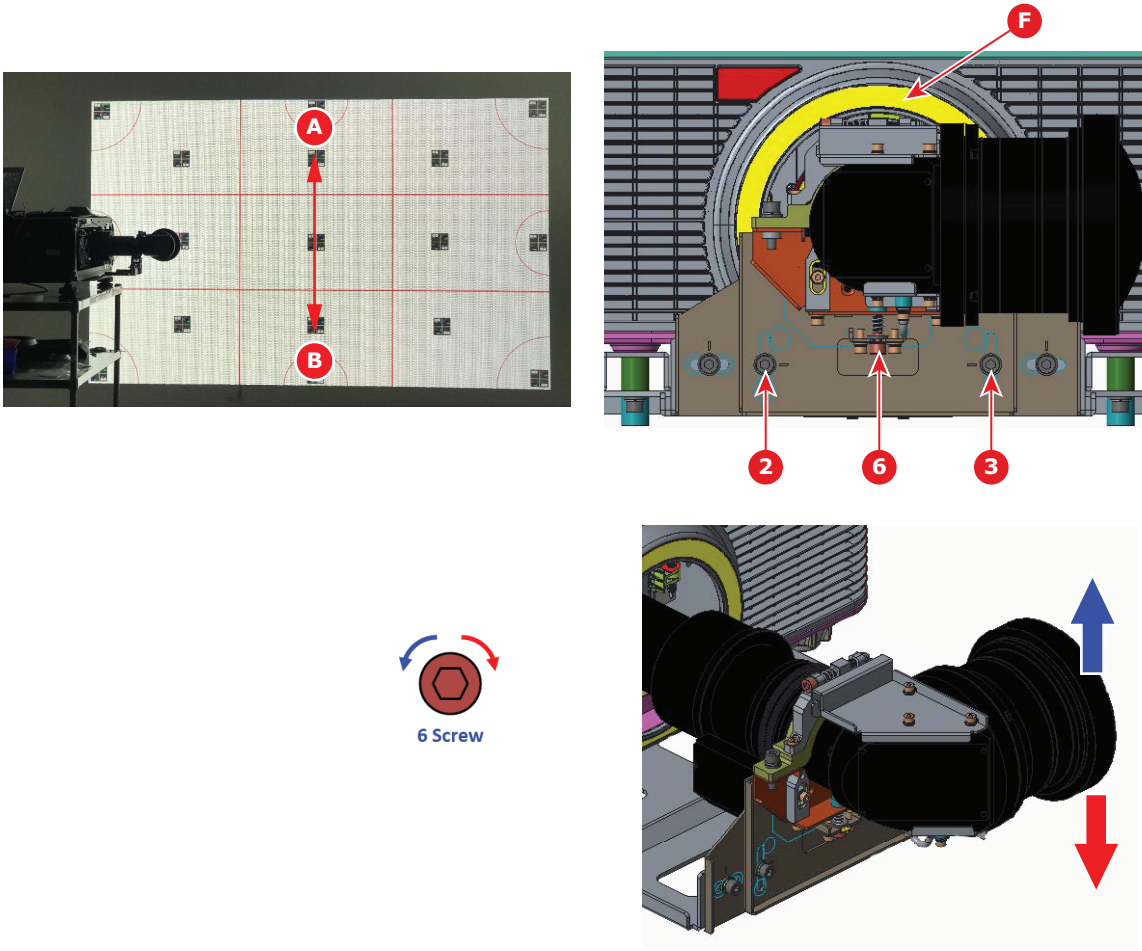


Image 6–25

Note: Screws 2 & 3 are tightened but lens can be pushed softly up or down to observe the image quality variation.

4. Is the horizontal resolution/unbalance acceptable when comparing between region C and D.
   - If yes, tighten screws 1 and 4.
   - If no, push lens softly horizontal and check the image quality. Tighten screws 1 and 4 when you have an acceptable image quality.

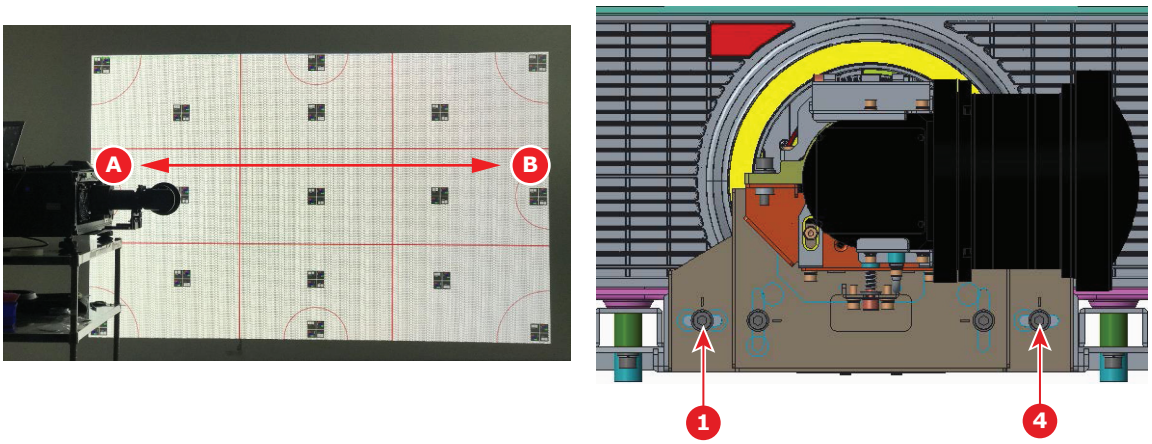


Image 6–26

5. Adjust Focus function in OSD and Focus Ring to have the best image quality.

   If the image quality is still unacceptable, please restart the procedure.

CAUTION: Do not execute any lens movements when the UST lens is fixed in the Lens Support.

List of tools

Allen wrench 3 mm
Allen wrench 4 mm
Allen wrench 5 mm
Boresight extenders
Boresight L shape socket tool

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