I65



User guide

BARCO

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The environmental conditions as well as the servicing and maintenance regulations specified in this manual must be complied with by the customer.

Patent protection

Please refer to *https://www.barco.com/about-barco/legal/patents*.

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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 I65 product. Furthermore, it includes several cautions to prevent damage to the unit. Ensure that all safety guidelines, safety instructions and warnings mentioned in this chapter are understood and followed before installing the I65 product.

To get correct and complete information, use the latest version of this document. The current version is available on the product documentation website at https://www.barco.com.

Clarification of the term “I65” used in this document

References in this document to the term “I65” means that the content is applicable for following Barco products:

- I65-4K10, I65-4K13, I65-4K16,I65-W10, I65-W13, I65-W16

Model certification name

- I65-4K10 : GPB-A
- I65-4K13 : GPB-B
- I65-4K16 : GPB-C
- I65-W10 : GPB-D
- I65-W13 : GPB-E
- I65-W16 : GPB-F

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 optimal performance. Neglecting this can result in loss of warranty.

1.1 General considerations



WARNING: Be aware of suspended loads.



WARNING: When suspending loads, wear a hard hat to reduce the risk of personal injury.



WARNING: Be careful while working with heavy loads.



WARNING: Mind your fingers while working with heavy loads.



WARNING: In case of emergency, disconnect the device from the mains power supply. In case the power input at the projector side is not accessible, a readily accessible general disconnect device shall be incorporated.

General safety instructions

- Before operating this equipment please read this manual thoroughly and retain it for future reference.
- All warnings on the unit and in its documentation manuals must be adhered to.
- Installation and preliminary adjustments must be performed by qualified Barco personnel or by authorized Barco service dealers.
- 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.
- All instructions for operating and use of this equipment must be followed precisely.
- All local installation codes must be adhered to.

전원코드 사양

한국용: KC 인증품을 구매하여 사용하세요 - 플러그: 250 V~, 16 A; 전원 코드: 60227 IEC 53, 3G01.5 mm2; 커넥터: 250 V~, 16 A.

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.

Notice on optical radiation

This projector embeds a light source incorporating high brightness lasers. The laser light is processed through the projector's 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 brightness than native laser light. Nevertheless the projected light can represent a significant risk for the human eye and skin when exposed directly within the beam. This risk is not specifically related to the characteristics of laser light but solely to the high thermal induced energy of the light source, which is equivalent with lamp based systems. Thermal eye injury is possible when exposed within the Hazard Distance (HD). The HD is defined from the projection lens surface towards the position of the projected beam where the intensity equals the applicable exposure limit as described in the chapter “Hazard Distance”.

This projector is classified as a laser product under IEC 60825-1: 2014, EN 60825-1:2014 +A11:2021. The projector, in particular the projection beam, is classified as a Risk Group (RG) under IEC EN 62471-5:2015.



WARNING: This projector has a built-in Class 4 laser module. Never attempt to disassemble or modify the laser module. Service only allowed by qualified service personnel.



WARNING: No direct exposure to the projection beam within the hazard distance shall be permitted for RG3 (Risk Group 3) IEC EN 62471-5:2015. Do not stare into the beam for RG2 (Risk Group 2) 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.

Optical radiation safety precautions

This projector is classified as CLASS 1 LASER PRODUCT - RISK GROUP 3.

Users definition

These projectors are intended “FOR PROFESSIONAL USE ONLY”, this means installation can only be carried out by trained and authorized persons.

Throughout this manual, the terms SERVICE PERSONNEL, INSTALLER refers to 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, HIGH TEMPERATURES and HIGH BRIGHTNESS SOURCES) in performing a task, and of measures to minimize the potential risks to themselves or other persons.

The term USER or OPERATOR of RG2 projectors refers to any other person than SERVICE PERSONNEL or INSTALLER. The term USER or OPERATOR of RG3 projectors refers to any person trained and authorized to operate professional RG3 projectors. The USER or OPERATOR may only perform the maintenance tasks set forth in the user manual or the maintenance tasks for which they are trained and authorized. All other maintenance tasks and service tasks must be performed by qualified SERVICE PERSONNEL.

1.2 Important safety instructions

To prevent the risk of electrical shock

- This product should be operated from a mono phase AC power source. Ensure that the mains voltage and capacity match the projectors electrical ratings. If you are unable to install the AC requirements, contact your electrician. Do not defeat the purpose of grounding.
- Use only the power cord supplied with your device. When no power cord for your region/country is provided, contact your dealer. The power cord must be suited for the electrical ratings indicated on the product ID label. Only power cords according to the local electrical code regulations can be used.
- This apparatus must be grounded (earthed) via the power cord.
- 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.
- 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.
- 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.
- 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.
- 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.
- Ensure that the main power cord complies with the national regulations at the site where the equipment is used.
- Do not use unauthorized replacements.
- Make sure that no objects enter into the vents and openings of the set.
- The projector is designed for indoor use only. Never operate the unit outdoors.

To prevent personal injury

- To prevent injury and physical damage, always read this manual and all labels on the system before powering the projector or adjusting the projector.
- To prevent injury, take note of the weight of the projector. The projector weights about 22.6 kg (49.8 lbs) without lens and rigging frame.
- 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 projector**: This projector embeds extremely 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 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.
  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 16.
- Based on international 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 optional barriers. Within the restricted area operator training is considered sufficient. The applicable separation heights are discussed in “High Brightness precautions: Hazard Distance”, page 16.
- Don’t put your hand in front of the beam.
- 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.
- A special device (“rigged frame”) based on an external frame must be used when the projector is deployed in a hanging configuration, or when several projector must be stacked. See installation manuals for the correct use of these devices.
- Never stack more than 2 projectors in a hanging configuration (truss) and never stack more than 3 projectors in a base stand configuration (table mount).
- When using the projector in a hanging configuration, always mount 2 safety cables. See installation manual for the correct use of these cables.
- 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.
- It is hazardous to operate without lens or shield. Lenses, shields or ultra violet screens shall be changed if they have become visibly damaged to such an extent that their effectiveness is impaired. For example by cracks or deep scratches.
- Never point or allow light to be directed on people or reflective objects within the HD zone.
- All operators shall have received adequate training and be aware of the potential hazards.
- In case of using an external cooling system position the hoses of the cooling system so that they will not be tripped over, pulled, or contact hot surfaces.

To prevent fire hazard

- Do not place flammable or combustible materials near the projector!

- Barco 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 in the exhaust area must be not less than 100 cm (40”). The exclusion zone on the intake area must be not less than 50 cm (20”).
- Do not place any object in the projection light path at close distance to the projection lens output. The concentrated light at the projection lens output may result in damage, fire or burn injuries.
- 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, CO_2 or dry powder fire extinguishers. Never use water on an electrical fire. Always have service performed on this projector by qualified service personnel. Always insist on genuine Barco replacement parts. Never use non-Barco replacement parts as they may degrade the safety of this projector.
- Ensure no misalignment can occur. Prolonged exposure of wooden walls at close distance (< 20 cm) can represent a fire risk. After alignment the projector shall be securely mounted to the pedestal.
- 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. It is necessary to vent hot exhaust air from projector and cooling system to the outside of the building.
- Let the projector cool completely before storing. Remove cord from the projector when storing.

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.

To prevent projector damage

Electrical

- This apparatus must be grounded (earthed) via the supplied 3 conductor AC power cable.
- 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.

Environment

- Allowed ambient temperature range: t_a= 10°C (50°F) to 40°C (104°F)
- Rated humidity = 0% RH to 80% RH Non-condensed.
- Ensure that nothing can be spilled on, or dropped inside the projector. If this does happen, switch off and remove all power from the projector. Do not operate the projector again until it has been checked by qualified service personnel.
- Do not use this equipment near water.

Air cleanness

- The projector must be installed in environments where the amount of dust particles is as low as expected in a standard office environment.
- The environment must be clean and free from hostile airborne particles which may have harmful effects, such as – and not limited to - airborne contaminants produced by smoke or snow machines, contaminants

derived from chemical products such as (and not limited to) disinfectants, conducting types of dust, excessive dust.

- These contaminants deposit a thin layer of greasy residue on the projectors internal optics and electronic boards, degrading performance and leading to failures.
  - Damage of this nature is under no circumstances covered under the manufacturer's warranty and may deem the warranty null and void.
  - The manufacturer reserves the right to refuse repair if a projector has been subject to knowingly neglect, abandon or improper use.
  - If the specified environmental conditions cannot be guaranteed, the projector must be removed, or switched off and fully protected until the requirements are fulfilled.
  - 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 the projector must be relocated to a clean air environment
  - Failure to take suitable precautions to protect the projector from the effects of air contaminants as mentioned above will culminate in extensive and irreversible damage.

Cooling

- The projector must always be installed in a manner which ensures free flow of air into its air inlets.
- Do not block the projector cooling fans or free air movement around the projector.
- 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.
- 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.
- The air filters of the projector must be cleaned or replaced on a regular basis. 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.
- In order to ensure that correct airflow is maintained, and that the projector complies with Electromagnetic Compatibility (EMC) and safety requirements, it should always be operated with all of it's covers in place.

DMD protection

- 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 sunlight. Sunlight on the lens can severely damage the Digital Mirror Devices™ in which case there is a loss of warranty.
- Add the optional external shutter to protect the projector optics from other light sources (e.g. direct sunlight, other laser light sources, etc) when the projector light source is off.

Operation

- Only use Barco projection lenses that are supported for the I65. Using other lenses will damage the internal optics. For suitable lenses contact Barco or see Barco website.
- 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. For lens cleaning follow the instructions precisely as stipulated in the projector manual.

Shipment

- 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.

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 unit 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 unit, 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 product 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.

Stacking, suspending and transporting

Stacking flight cases

- Stack maximum 2 rental flight cases high. Never higher.
- Ensure the surface is level and can support the load safely.
- Check wheels and fixation screws for wear or defects before stacking.
- Ensure lock handles are in good working order and locked securely.
- Position the wheels of the upper flight case in the stacking dishes of the lower case.
- Do not move stacked flight cases. Position the lower case first.

Transporting flight cases

- Always transport flight cases with wheels facing down.
- Do not stack loaded flight cases in a truck unless strapped tight.
- Strap flight cases tight if a wheel breaks to prevent collapse.
- Use an appropriate forklift and take precautions to avoid injury.

Handling rigging frames

- Take into account the total weight of the rigging frame with a projector mounted.
- Lift the rigging frame and projector with four people to avoid injury.
- Never transport the rigging frame in portrait position with a projector mounted.
- Use rigging frames to suspend a maximum of 2 projectors from a truss.
- Use rigging frames to stack a maximum of **3** projectors.
- Follow the installation instructions for rigging frames precisely.

Stacking rigging frames

- Ensure the surface is level and can support the stacked rigging frames safely.
- Stack a maximum of **3** rigging frames.

Four points suspension

- Connect maximum 2 rigging frames together for suspension from a truss.
- Use four rigging points, equally spread, to suspend the rigging frame with a projector mounted.
- Installer must suspend the rigging frames safely and securely.
- Apply safety cables according to local regulations.

Single point suspension

- Connect maximum **2** rigging frames together for suspension from a truss.
- Use one of the two central rigging points of the rigging frame for single point suspension.
- Use four M8 bolts inserted at least 15 mm into the frame of the central rigging point.

- Do not incline the rigging frame more than 20° in single point suspension.
- Secure the single point truss mount after adjustment.
- Attach two safety cables from the truss to the frame bars of the lowest rigging frame.
- Use the two opposite frame bars to connect the safety cables.
- Ensure the projector cannot fall more than 20 cm if something goes wrong.

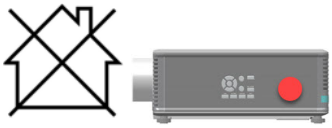
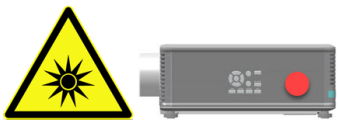
Safety Data Sheets for Hazardous Chemicals

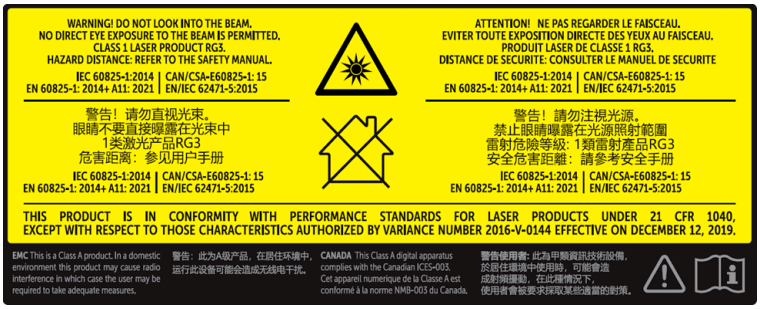
For safe handling information on chemical products, consult the Safety Data Sheet (SDS). SDSs are available upon request via safetydatasheets@barco.com.

1.3 Product safety labels

Light beam related safety labels

Safety labels explanation and location:

Refer to user manual for further information!	
Hazard RG3: Not for household use symbol.	
Hazard RG3: Optical radiation warning symbol.	





WARNING! DO NOT LOOK INTO THE BEAM. NO DIRECT EYE EXPOSURE TO THE BEAM IS PERMITTED.CLASS 1 LASER PRODUCT RG3. HAZARD DISTANCE: REFER TO THE SAFETY MANUAL.

ATTENTION! NE PAS REGARDER LE FAISCEAU.EVITER TOUTE EXPOSITION DIRECTE DES YEUX AU FAISCEAU.PRODUIT LASER DE CLASSE 1 RG3. DISTANCE DE SECURITE: CONSULTER LE MANUEL DE SECURITE.

警告! 请勿直视光束。眼睛不要直接曝露在光束中 1类激光产品RG3 危害距离：参见用户手册

警告! 請勿注視光源。 禁止眼睛曝露在光源照射範圍雷射危險等級: 1類雷射產品RG3 安全危害距離：請參考安全手冊

IEC 60825-1:2014 | EN 60825-1: 2014+ A11: 2021 | CAN/CSA-E60825-1: 15 | EN/IEC 62471-5:2015

THIS PRODUCT IS IN CONFORMITY WITH PERFORMANCE STANDARDS FOR LASER PRODUCTS UNDER 21 CFR 1040, EXCEPT WITH RESPECT TO THOSE CHARACTERISTICS AUTHORIZED BY VARIANCE NUMBER 2016-V-0144 EFFECTIVE DECEMBER 12, 2019.

EMC 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.

警告：此为A级产品，在居住环境中，运行此设备可能会造成无线电干扰。

警告使用者: 此為甲類資訊技術設備，於居住環境中使用時，可能會造成射頻擾動，在此種情況下，使用者會被要求採取某些適當的對策。

CANADA This Class A digital apparatus complies with the Canadian ICES-003.

CANADA Cet appareil numerique de la Classe A est conformé à la norme NMB-003 du Canada.

1.4 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 eye 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 “HD as a function of modifying optics”, page 20.

To protect untrained end users (as venue 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.

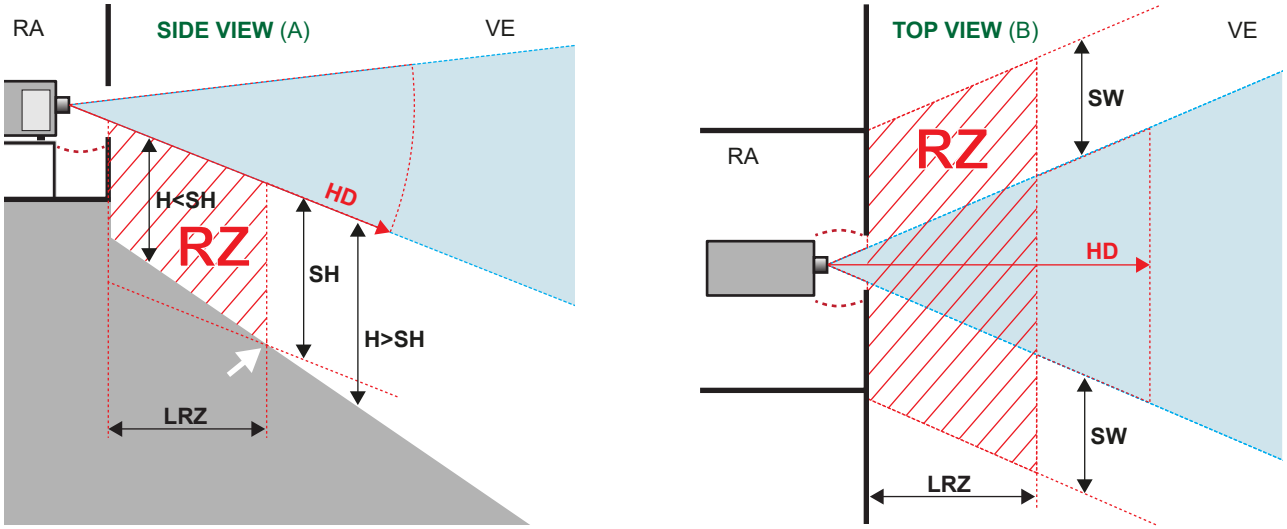


Image 1–1

A Side view
B Top view
RA Restricted Access location (boot area of projector).
VE Venue
RZ Restriction Zone
HD Hazard Distance
LRZ Length Restriction Zone
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 venue 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.

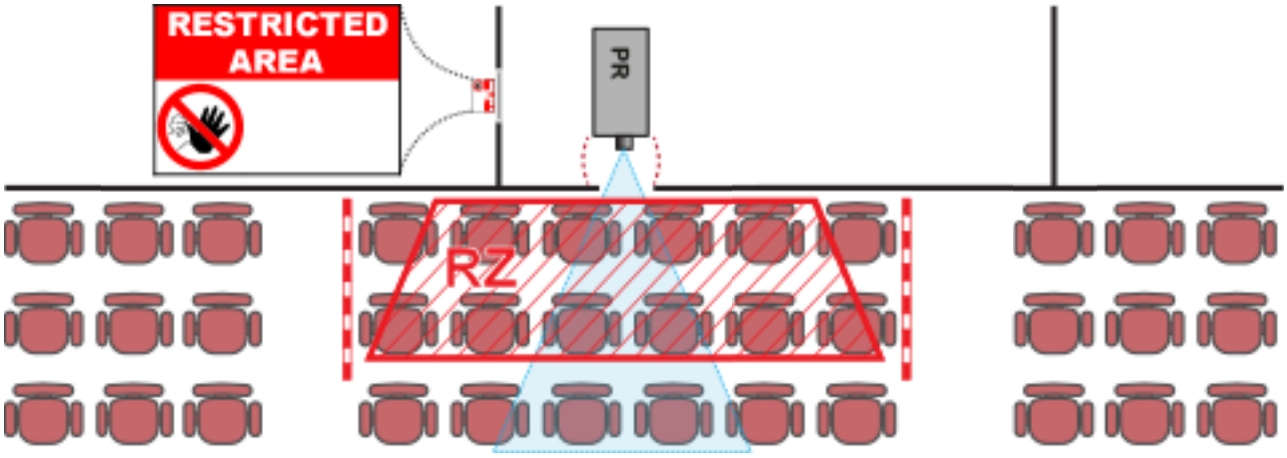


Image 1–2

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.

1.5 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 eye 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 following graphic, two areas should be considered: the restricted enclosed projection area (RA) and the observation area (VE).

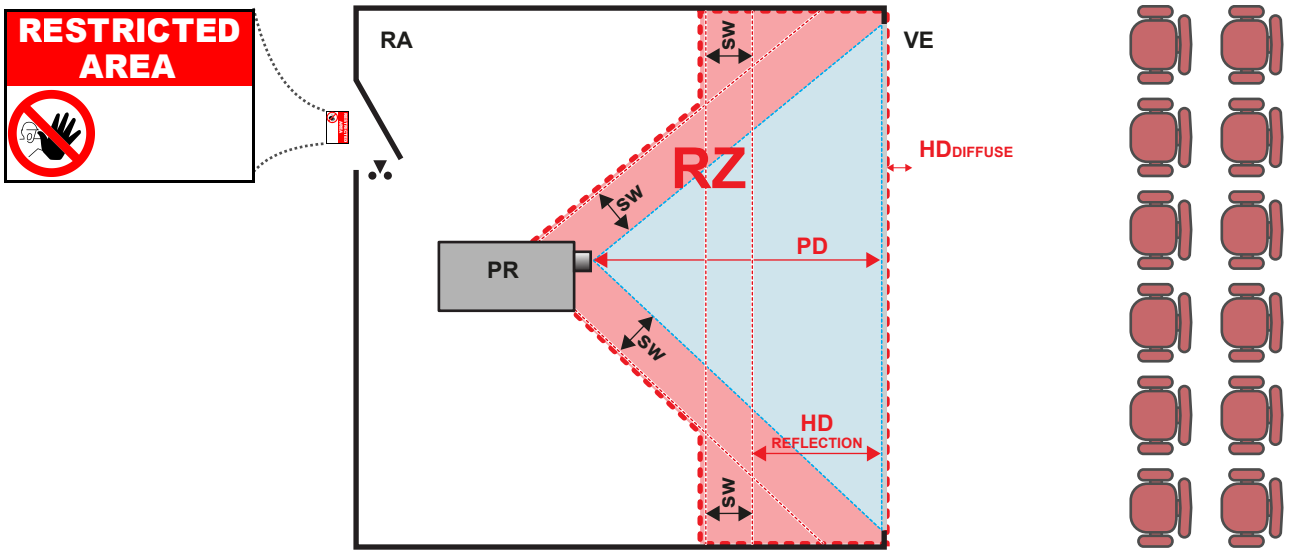


Image 1–3

RA Restricted Access location (enclosed projection area).
PR Projector.
VE Venue (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 16, 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 16, 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 “HD as a function of modifying optics”, page 20.

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

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.

1.6 HD as a function of modifying optics

Hazard distance

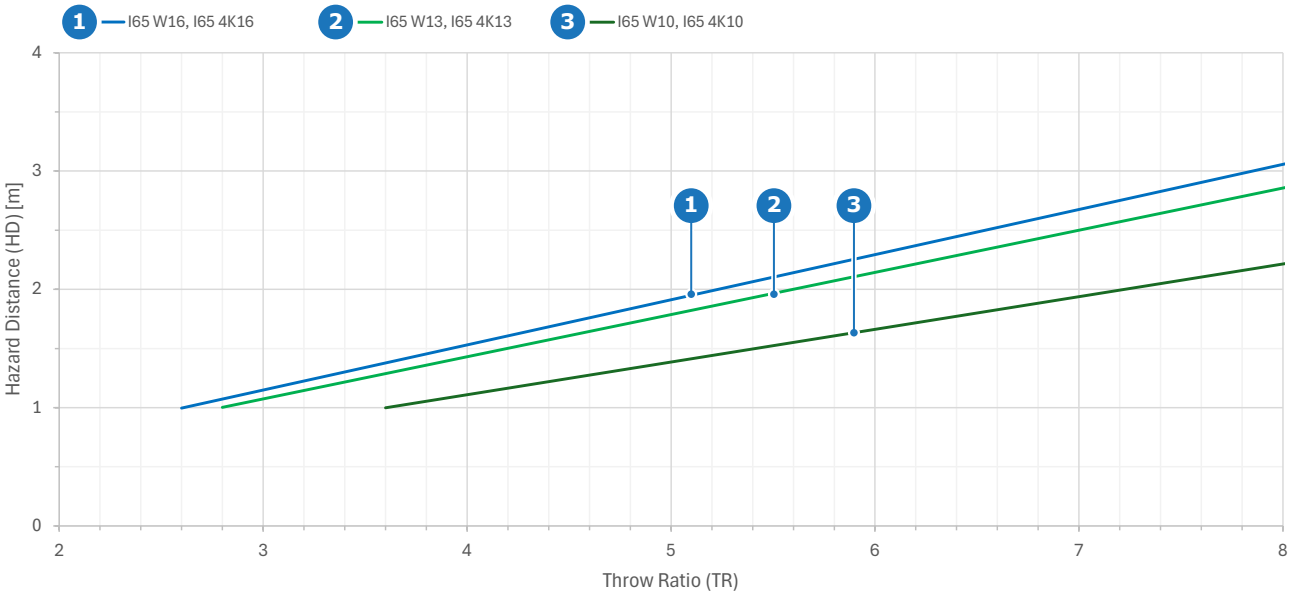


Image 1–4

HD Hazard Distance
TR Throw Ratio

No hazard distance measures required when the hazard distance is shorter than 1 meter. Do not stare into the beam and prevent close exposure to children.

1.7 HD calculation of multi-projector stacks

Sometimes two or more projectors are stacked (projecting on the same surface). In this case, because of the overlap of the images, possibly a system Hazard Distance needs to be applied instead of a single projector hazard distance.

Only projectors stacked along one axis (horizontal or vertical) should be considered. Physical stacking of projectors in two dimensions (for example 2x2), can be reduced to separate “N”x1 systems.

The information needed is:

- The Hazard Distance (**HD**) of a single projector with the given lens.
- The distance (**h**) between two adjacent projector lens centers in the stack.

For 3 or more projectors, in case the distances between adjacent lenses are not equal, take the shortest distance.

HD calculation:

- For stacking two-projectors:
  - **If the single projector hazard distance HD ≥ 9*h**, then the system hazard distance to implement is 1.15*HD.
  - **If the single projector hazard distance HD < 9*h**, then keep the original HD and risk zone per projector.
- For stacking “N” projectors along the same axis, “N” being 3 or more:
  - **If the single projector hazard distance HD ≥ 12*h**, then the system hazard distance to implement is (“N”/2 + 0.15) * HD.
  - **If the single projector hazard distance 9*h ≤ HD < 12*h**, then the system hazard distance to implement is 1.15*HD.

- **If the single projector hazard distance HD < 9*h**, then keep the original HD and risk zone per projector.

1.8 Compliance

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

1.9 Download Product Manual

Download product manual

Product manuals and other related documentation are available online at https://www.barco.com. Search or browse to the product support page or scan the QR code on the product ID-label or on the box label. To see all service documentation (e. g., spare part list, service manuals, field loadable software ...) you must be registered and logged in.

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

I65 introduction 2

2.1 Projector orientation....24
2.2 Projector components....24
2.3 Projector airflow....24
2.4 Projector status....25

About this chapter

This chapter and by extension this whole document, the **I65 user guide**, is intended for the user who want to get familiar with the projector hardware parts. It describes the input and communication boards, the remote control unit, local keypad, how to power up the projector, the different power states, product specifications and much more.

2.1 Projector orientation

Orientation convention

This manual refers to the left side of the as the left side of a person standing behind the projector and looking at the projection screen in front of the projector.

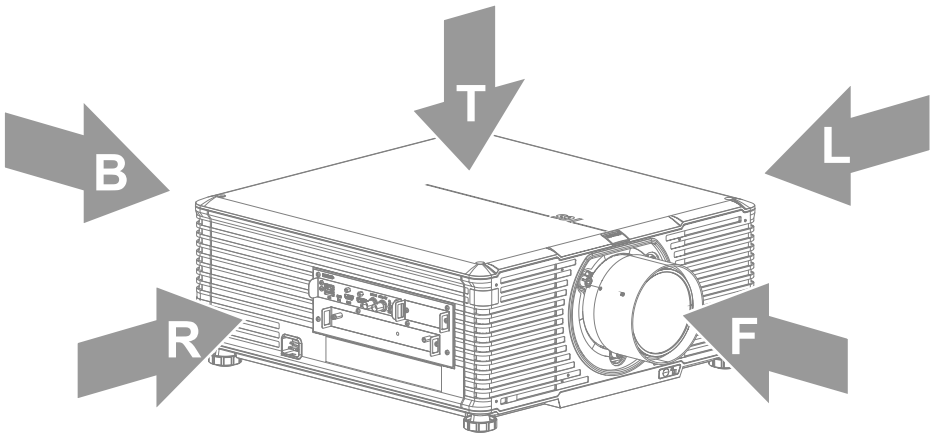


Image 2–1

T Top
L Left
F Front
R Right
B Back

2.2 Projector components

Component location

Front view

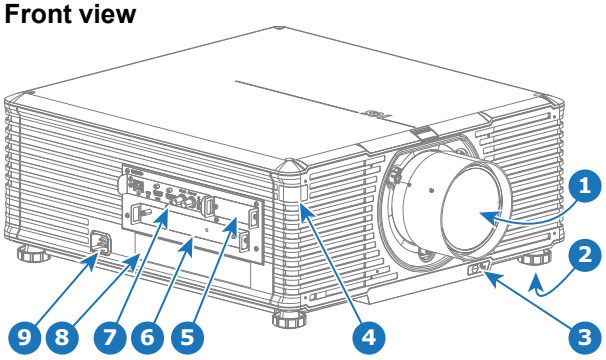


Image 2–2

1 Projector lens
2 Adjustable feet (x4)
3 Lens unlock button
4 Infrared receiver front
5 SDM-S expansion slot
6 SDM-L expansion slot
7 Control & input board
8 Product ID label
9 Mains input socket

Back view

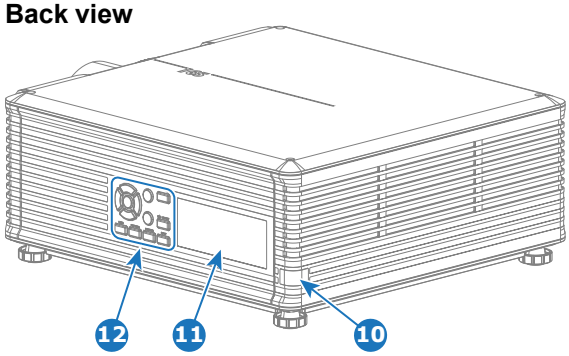


Image 2–3

10 Infrared receiver back
11 Safety label
12 Local keypad

2.3 Projector airflow

Air inlets and outlets

The projector has 1 air inlet channel and 1 air outlet channel. The air outlet channel is located at the front side of the projector. The air outlet channel is located at the back side of the projector.

CAUTION: Never block the air inlets or outlets of the projector. Always ensure that clean cool air, compliant with the specified ambient temperature, can freely enter the air inlets of the projector.

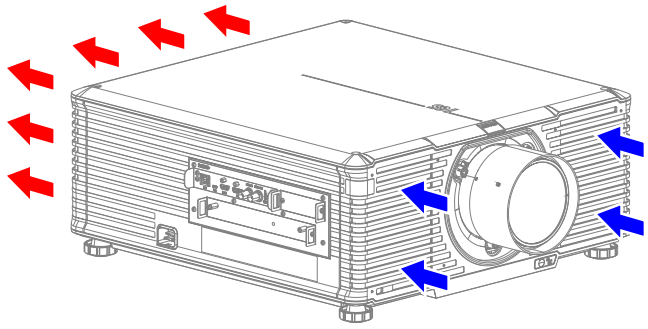


Image 2–4

2.4 Projector status

Projector status indicator LEDs

The control & input board contains two status LEDs. These LEDs allows for a quick status analyses of the projector.

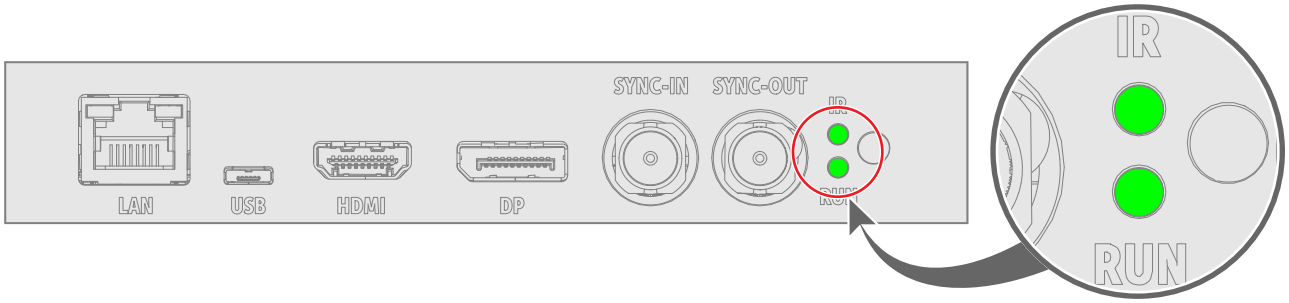


Image 2–5

LED	Color status	Description
RUN	Off	Projector is not connected to the power net
	Solid green	Projector is on
	Solid red	Projector is in standby mode
	Fast blinking green	Projector is changing from on to standby or from standby to on
	Fast blinking red	An error is detected
	Solid yellow	Projector is starting up
	Slow blinking yellow	Projector is communicating with a flash drive
	Fast blinking yellow	A maintenance action is ongoing, example: software update, diagnostic package creation, factory reset, ...
IR	Red	IR signal received
	Green	IR signal acknowledged

There are additional LEDs on the local keypad. For more information, see “Local keypad backlight”, page 32.

I65 software

3

3.1 User accounts and security 28
3.2 Pulse Lite OS 28
3.3 Pulse Lite Prospector 29
3.4 Pulse Toolset 29
3.5 Web Analyzer 30

About this chapter

This chapter provides an overview of the various software components integrated with the I65 projector. Essential information on accounts and security is also explored.

3.1 User accounts and security

Authentication

To enhance the security of the Pulse-based projectors, authentication is required to use the projector over a network. Authentications are done at each connection with the projector by logging in with a password.

User group details

The following two groups of accounts are available:

- End user
- Service partner

The service partner is intended for service activities that can only be performed by authorized staff. To activate this account the service partner must obtain the service user password. For more information, see the Pulse Lite OS user guide or the Pulse Lite Prospector user guide.

Role of the user groups

Groups	Features[1]
End user	• Can use the basic Pulse features
Service	• Private user account, reserved for certified service partners. • Cannot be deleted, renamed or otherwise edited. • Can use the *Tool (Dev Only)* menus related to servicing actions on the projector.

3.2 Pulse Lite OS

Introduction to Pulse Lite OS

Pulse Lite OS is the graphical user interface designed for Pulse-based projectors. When active, the interface is shown on top of the projected image. Various settings and adjustments can be made through the Pulse Lite OS interface.

Key Features

- **User Interface**: Every feature is grouped into categories. Through these categories all similar functions can be adjusted.
- **Navigation**: Users can navigate through the On-Screen Display (OSD) menus using the local keypad or the remote-control unit.

Pulse Lite OS user guide

All features of Pulse Lite OS are described in a dedicated *user guide*.

Initial setup

1. Power on the projector. For more information, see “Powering on the projector”, page 38.

   The end user license agreement page is shown.
2. Read the end user license agreement.
3. While on the last page, accept the end user license agreement terms.

   The projector starts and the IP address of the projector is projected.
4. Configure the user account using Pulse Lite Prospector. For more information, see “Pulse Lite Prospector”, page 29. (**optional**)

1. Features depend on projector model and software version.

3.3 Pulse Lite Prospector

Introduction to Pulse Lite Prospector

Pulse Lite Prospector is a built-in web application in the projector. The web application allows for remote configuration and control of the projector. Pulse Lite Prospector can be accessed through any web browser on both computers and mobile devices. No additional software must be installed.

Pulse Lite Prospector user guide

All features of Pulse Lite Prospector are described in a dedicated *user guide*.

Prerequisites

The device must be in the same network as the projector or have full access to the projector network.

Barco recommends updating the web browser to the latest available version for the best experience, compatibility and security.

Initial setup

1. Open a browser of choice.
2. Navigate to the IP address of the projector using the address bar of the browser.

   Note: Depending on the configuration of the browser, a standard “Your connection is not private” security warning can be displayed (type: net::ERR_CERT_AUTHORITY_INVALID).
   For a temporary solution, click “**Advanced**” and “**proceed to [hostname] (unsafe)**”. It may take some time for the login page to be displayed.
   For a permanent solution, the product certificate must be trusted as a root certificate in the browser. For more info, contact the local IT responsible.

   Tip: The default IP address is `192.168.1.100`.
   The projector IP address can be found in the Pulse Lite OS user interface. For more information, see the Pulse Lite OS user guide.

3. Is the end user license agreement excepted using Pulse Lite OS?
   - If **yes**, go to step 6.
   - If **no**, read the end user license agreement and go to next step.
4. While the end user license agreement is scrolled all the way to the bottom, check the check box in front of *I have read and agree with the End User License Agreement*.
5. Click *I Accept*.

   The account page is shown
6. Enter a password for the account twice.

   Note: The password must be 6-12 characters long, including at least one uppercase letter, one lowercase letter, one number, and one special character.

7. Click *Create*.
8. Refresh the page to show the login page.

3.4 Pulse Toolset

About Pulse Toolset

Pulse Toolset is a standalone desktop application that is used to remotely set up, configure, monitor, and manage a wide range of projects, including multiple Barco Pulse-based projectors and other devices, which need to be connected to the same network. These projects or setups are stored as configurations and can be shared and loaded across computers. Making it possible to work with multiple configurations at the same time.

Pulse Toolset integrates all separate Pulse Lite Prospector views from each projector into a single interface, allowing centralized management of all connected Barco Pulse-based projectors.

Pulse Toolset user guide

All features of the Pulse Toolset are described in a dedicated *user guide*.

Download Pulse Toolset

Download the latest version of Pulse Toolset from the *Barco support page*.

3.5 Web Analyzer

Introduction to Web Analyzer

Web Analyzer is a cloud-based and free web tool giving access to the projector log files. By dragging and dropping the diagnostic package, access to an intuitive dashboard and analysis tool for effective root cause finding and health optimization is provided.

Go to Web Analyzer: *https://webanalyzer.proj.barco.com*

To create and view a diagnostic package see user guide of “Pulse Lite OS”, page 28, or “Pulse Lite Prospector”, page 29.

4 Local keypad

4.1 Local keypad functions....32
4.2 Local keypad backlight....32

4.1 Local keypad functions

Overview

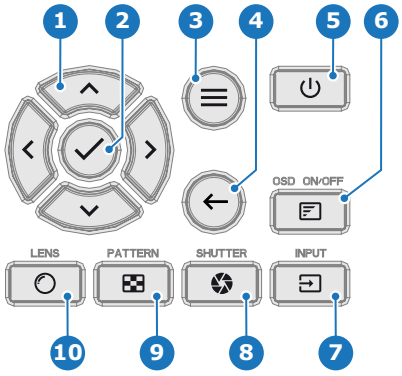


Image 4–1

1 Navigation
2 Confirmation
3 OSD toggle
4 Menu back
5 Power
6 OSD toggle
7 Input selection
8 Shutter toggle
9 Test patterns
10 Lens menu

Functionality

The local keypad provides direct access to several projector functions and access to the Pulse Lite OS menu. For more detailed information on how to use the local keypad, see the *Pulse Lite OS user guide*.

4.2 Local keypad backlight

Button backlight status

The **Power** and **Shutter** buttons are equipped with white, blue and red backlit LEDs.

Button	Color status	Description
Power 	Off	Projector is not connected to the power net
	Solid white	Projector is in standby mode
	Fast blinking blue	Projector is switching from standby mode to on mode
	Solid blue	Projector is on
	Fast blinking white	Projector is switching from on mode to standby mode, or a maintenance action is in progress (for example, a software update, diagnostic package creation, or factory reset)
	Fast blinking red	An error is detected
Shutter 	Off	Projector is disconnected from the power supply, in standby mode, or starting up
	Solid white	Shutter is open
	Solid red	Shutter is closed

There are additional LEDs on the control & input board. For more information, see “Projector status”, page 25.

Basic Remote Control Unit

5

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5.2 Basic remote batteries 34

About the basic remote

The I65 projector is standard delivered with a basic remote control unit (without batteries).

5.1 Basic remote functions

Functions

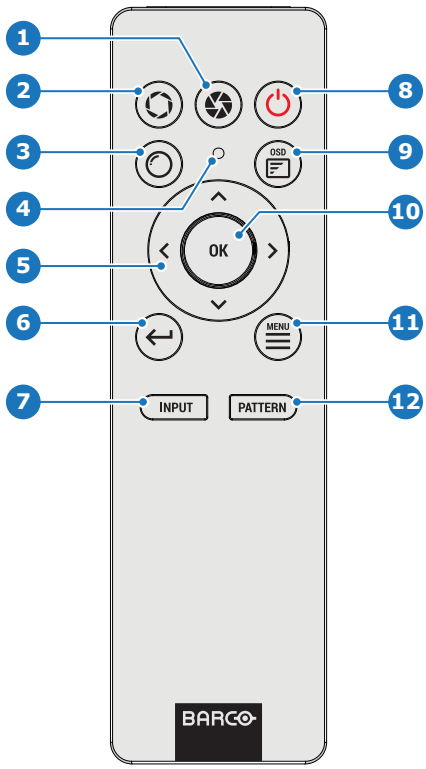


Image 5–1

1 Close shutter
2 Open shutter
3 Open lens menu
4 Button pressed indicator
5 Menu navigation keys
6 Move back one level in menu system
7 Open source menu
8 Power on / off
9 OSD menu on / off
10 Menu confirmation
11 GUI activate / deactivate
12 Open test pattern menu

When pressing the GUI activate / deactivate button while the projector is in stand-by mode, will also power up the projector.

5.2 Basic remote batteries

Battery placement & replacement

The basic remote control is powered by two (2) standard AAA batteries. The needed batteries are not included in the packaging.

The battery compartment is on the back side of the basic remote control. The following image illustrates how to open the battery compartment.

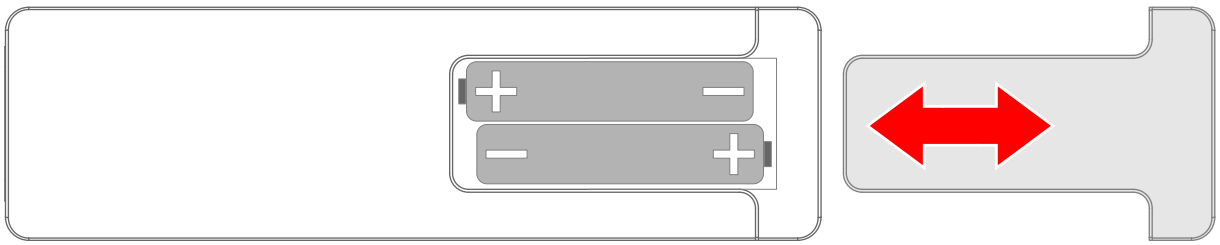


Image 5–2 Position of batteries in basic remote.

CAUTION: Replace batteries with the correct battery type. Only use AAA size batteries. There is a risk of explosion if the battery is replaced with an incorrect type.
Make sure the polarities match the + and - marks, as depicted on the inside of the battery compartment. There is a risk of explosion if the batteries are installed incorrectly.

6 Powering on / off

6.1 Power modes 38
6.2 Powering on the projector 38
6.3 Powering off the projector 39
6.4 Power mode transitions 40

6.1 Power modes

Overview

The projector has two power modes:

Mode	Description
STANDBY	Projector is booted up. and the light source is switched off.
ON	The light source is switched on.

LAN is enabled by default in the projector settings, allowing network access to the projector when it is in **STANDBY** mode. To enable or disable LAN activity, see the user guide for the Pulse Lite OS or Pulse Lite Prospector.

Energy consumption in **STANDBY** mode with LAN disabled is significantly lower: less than 0.5 W.

6.2 Powering on the projector

CAUTION: Use only the power cord supplied with your device. When no power cord for your region/ country is provided, contact your dealer. The power cord must be suited for the electrical ratings indicated on the product ID label. Only power cords according to the local electrical code regulations can be used.

WARNING: Do not attempt operation if the AC supply and cord are not within the specified voltage and power range.

How to power on

1. Connect the power cable from the power net to the mains input as illustrated.

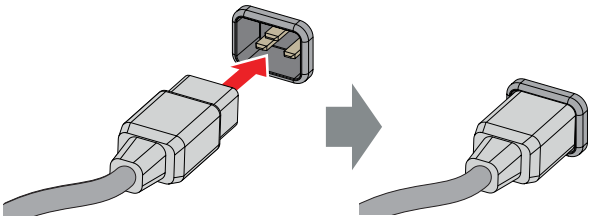


Image 6–1

The projector starts booting, this may take several minutes.

Only in case of an initial startup or after a factory reset, the End User License Agreement (EULA) window will appear.

2. Does the End User License Agreement (EULA) window appear?
   - ► If yes, accept the EULA.
   - ► If no, proceed to the next step.
3. Which power mode is the projector in?

Tip: The state is communicated through the backlight color of the button.

► If the projector is in **STANDBY** mode, press the **power** button of the local keypad or the **power on / off** button on the remote.
► If the projector is in **ON** mode, proceed to the next step.



Image 6–2

4. What state is the shutter in?

   Tip: The state is communicated through the backlight color of the button.

   ► In case of an **open shutter**, no further action required.
   ► In case of a **closed shutter**, press the **shutter** button of the local keypad or the **shutter open** button on the remote.

   Image is shown on the wall when the light source and projector electronics have started up, this may take several minutes.

6.3 Powering off the projector

About powering off

Optical elements of the project get hot during use. To protect these optical elements, the projector must cool them before being disconnected from the power net. When the projector is not in use, keep the projector powered and set to standby to reduce power consumption.

CAUTION: Never power off the projector by means of unplugging the mains cord or by cutting down the mains power.

How to power off

1. What state is the projector in?

   Tip: The state is communicated through the backlight color of the button.

   ► In case of **on**, press and hold the **power** button of the local keypad or the **power on / off** button on the remote for 5 seconds.
   ► In case of **standby**, go to next step.



Image 6–3

   The light source and projector electronics turn off, this may take several minutes.

2. Remove the power cable from the mains input as illustrated

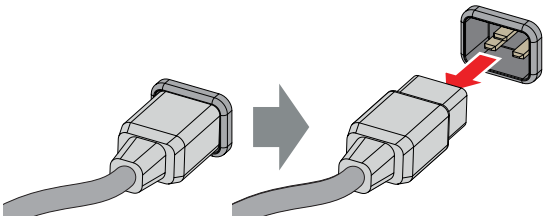


Image 6–4

6.4 Power mode transitions

Power transition diagram

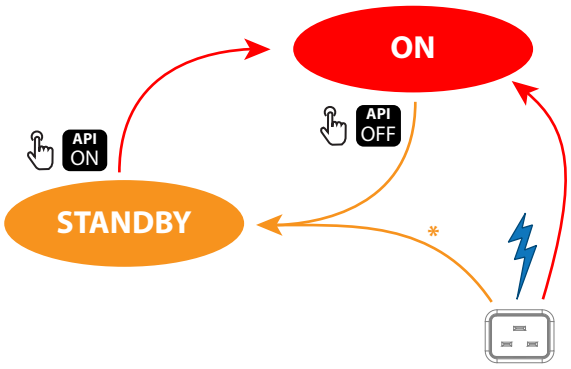


Image 6–5

Symbol	Description
	Pressing the **power** button on the local keypad or the **power on/off** button on the remote control unit.
API ON API OFF	Change the power state of the projector if LAN is enabled by: • clicking the **on/off** button in Pulse Lite Prospector. • sending API command (Power ON, Power OFF).
	On first installation or after a factory reset, the projector powers up in **ON** mode when power is applied. This behavior can be changed in the projector configuration to make the projector power up in **STANDBY** mode (*).

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7.1 Control & input board

Front panel

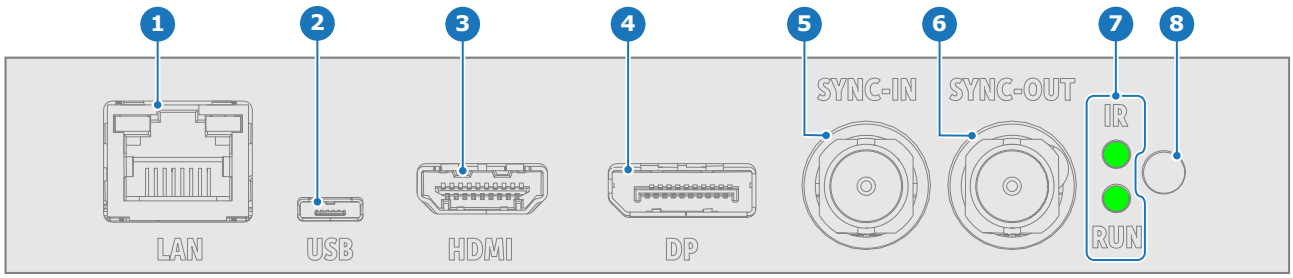


Image 7–1

1 LAN port
2 USB Micro-B port
3 HDMI™ 2.0 port
4 DisplayPort™ 1.4 port
5 3D sync in BNC port
6 3D sync out BNC port
7 Projector status LEDs
8 IR receiver

Functionality

Nr	Name	Description
1	**LAN**	RJ45 connector for external projector control over IP.
2	**USB**	USB Micro-B port. This port support firmware updates (see chapter “Software update”, page 52).
3	**HDMI**	HDMI 2.0 input port for source connection to the projector.
4	**DP**	DisplayPort 1.4 input port for source connection to the projector.
5	**SYNC I/O**	BNC sync port in/out for projector control.
6		This is mainly used in multiple projector installations with requirement of synchronization between the units.
7	**Status LEDs**	Projector status LEDs (see chapter “Projector status”, page 25).
8	**IR**	Infra Red receiver.

7.2 Expansion slots

Supported expansion cards

The I65 has two optional expansion slots near the control and input board. When no expansion card is installed, a cover is positioned over the slot. The following form factors are supported by the slots:

- Intel® Smart Display Module Small (SDM-S)
- Intel® Smart Display Module Large (SDM-L)

8 Dust filter

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About the optional dust filter

The dust filter for the projector is an optional accessory designed to protect the internal components. This dust filter is installed on the air inlet side (front) of the projector, effectively preventing dust and other airborne particles from entering the device. By maintaining a cleaner internal environment, the front filter helps to prolong the lifespan of the projector when used in locations with high levels of dust and debris.

8.1 Defining the interval for inspection

Why filter condition matters

A clean dust filter is essential for optimal projector performance and longevity. Dust and debris can clog filters, leading to overheating, dim images, loud fans, and potential damage. Regular inspection and maintenance prevent these issues.

Inspection interval

The dust filter has a limited capacity to block dust and other contaminants. Before this capacity is exceeded, the filter must be cleaned or replaced to protect the projector. For this reason, Barco recommends adjusting the inspection interval based on the following factors:

1. For a **new** installation:
   - **Low** idle time and **high** ambient dust, inspect every **50 hours** of use.
   - **Low** idle time and **low** ambient dust, inspect every **200 hours** of use.
   - **High** idle time and **high** ambient dust, inspect every **month**.
   - **High** idle time and **low** ambient dust, inspect every **month**.
2. **After** each inspection, adjust the period based on the findings:
   - **Minimal** dust build-up, **extend** the inspection period.
   - **Light** dust build-up, **maintain** the inspection period.
   - **High** dust build-up, **shorten** the inspection period.
3. **During use** of the projector.
   - **Shorten** the inspection period when:
     - The projector **overheats**.
     - The light emitted is being **dimmed**.
     - The **fans** are frequently **louder** than usual.

Replacing the dust filter

The capacity of a dust filter can diminish over time. For that reason, Barco recommends replacing the dust filter in the following cases:

- **Discoloration**, when the filter no longer returns to the original color, for example a white filter looks brown/black.
- **Physical damage**, such as tears, rips, a warped frame or holes are present on the filter or the filter housing.
- **Persistent contaminants**, that remain after cleaning the filter thoroughly, causing the filter looks opaque when held to light.
- **Irregular contaminants**, when any mold, sticky, oily, or other unusual contaminants are present on the filter.

How to inspect

1. Power off the projector. For more information, see “Powering off the projector”, page 39.
2. Remove the dust filter. For more information, see “Removing the dust filter”, page 45.
3. Use a bright light to check both sides of the dust filter for contaminants, damage or discoloration.

   ⚠ *Caution:* **Handle gently:** Avoid damaging the dust filter during inspection or cleaning.

4. What is the state of the filter?
   ► In case of **minimal** contamination, reinstall the dust filter. For more information, see “Installing the dust filter”, page 48.
   ► In case of **sticky** contamination, wash the filter. For more information, see “Washing and drying the dust filter foam”, page 46.
   ► In case of **non-sticky** contamination, vacuum the filter. For more information, see “Washing and drying the dust filter foam”, page 46.
   ► In case of **damage** or **discoloration**, replace the dust filter.
5. Power the projector back on. For more information, see “Powering on the projector”, page 38.

6. Adjust the inspection interval as needed based on the inspection.

8.2 Removing the dust filter

Prerequisites

The projector must be turned off. For more information, see “Powering off the projector”, page 39.

Required tools

Torx screwdriver T10

How to remove

1. Remove the eight screws (reference 1) of the dust filter.

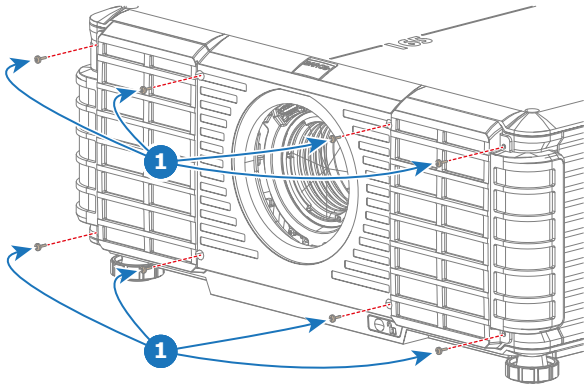


Image 8–1

2. Remove the dust filter from the projector as illustrated.

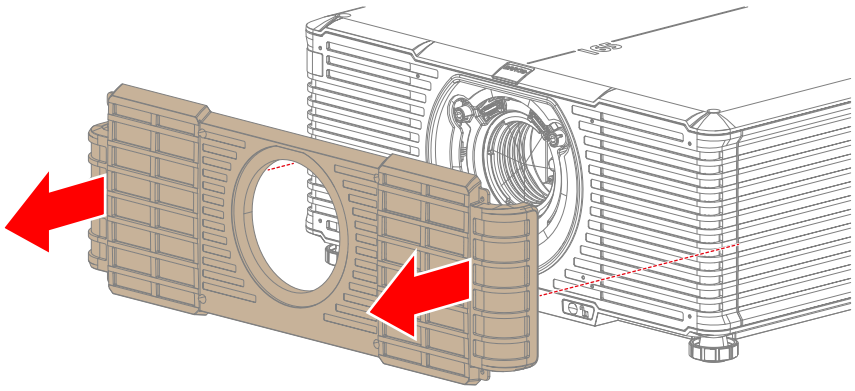


Image 8–2

3. Must the foam be reused?
   - ► If **yes**, remove the foam from the dust filter as illustrated. Go to next step.
   - ► If **no**, no further actions required.

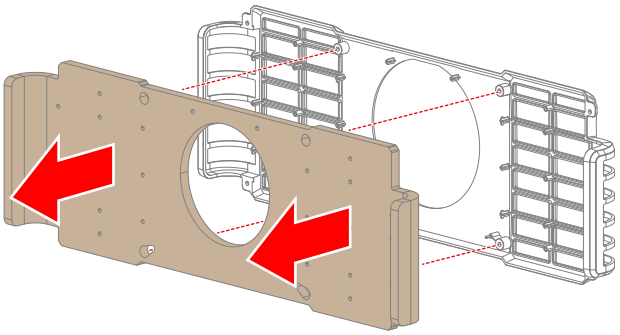


Image 8–3

4. Clean the removed foam using one or both of the following methods:
   ► “Vacuum cleaning of the dust filter foam”, page 46.
   ► “Washing and drying the dust filter foam”, page 46.

8.3 Vacuum cleaning of the dust filter foam

About vacuum cleaning

When the foam is contaminated with dust, then cleaning the foam with a vacuum cleaner is required.

Prerequisites

The foam must be removed from the dust filter. For more information, see “Removing the dust filter”, page 45.

Required tools

Vacuum cleaner with a soft brush suction nuzzle.

How to clean

1. Carefully vacuum the air inlet side of the foam. Use a vacuum cleaner with a soft brush suction nuzzle.

   Tip: Compressed air can be used to but take care not to damage the foam.

   Caution: Replace a damaged dust filter foam immediately.

2. Lightly tap the foam on the dusty side to expel heavy dust contamination.
3. Does the foam feel greasy?

   Note: Grease on the filter can build up after several months in an environment contaminated with greasy air. Areas where popcorn is consumed are subject to greasy air.

   ► If **yes**, wash the foam. For more information, see “Washing and drying the dust filter foam”, page 46.
   ► If **no**, install the foam in the dust filter. For more information, see “Installing the dust filter”, page 48.

8.4 Washing and drying the dust filter foam

About filter foam washing and drying

Environments with grease or other sticky particles require frequent washing of the filter foam. The drying process of a filter foam may take **more than 24 hours**. For that reason, Barco recommends having a second set of filter foam to use while the other foam is drying.

Cleansing agent

Barco suggests using **sodium carbonate** crystals (Na_2CO_3). Sodium carbonate, often called **washing soda**, **soda crystals**, or **sal soda** in the detergent section of stores. is widely used to effectively remove oil, grease, alcohol stains, …

The cleansing agent is relatively safe, sodium carbonate is used in toothpastes and as a food additive (E500). Potential hazards are described in the section “Important safety instructions”, page 10.



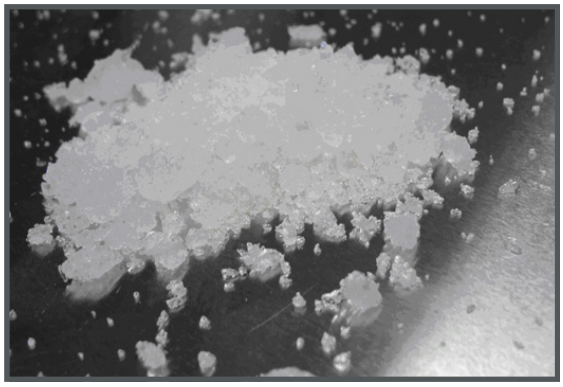


Image 8–4 Sodium carbonate crystals.

Prerequisites

The dust filter foam must be removed from the dust filter. For more information, see “Removing the dust filter”, page 45.

Required tools

- Bucket with hot water
- Sodium carbonate, 30 gram (handful) per liter hot water

How to clean

1. Make a solution with a ratio of 30 gram (a handful) sodium carbonate to 1 liter **hot water**.
2. Soak the foam in the solution for **30 to 60 minutes**.

   The grease is dissolved in the solution.
3. Is the foam still greasy?
   - ► If **yes**, repeat from 1.
   - ► If **no**, flush all the remaining residue away. Use clean water.
4. Shake out all excess liquid by repeatedly swinging the foam back and forth.
5. Let the foam **dry thoroughly**.

   Note: Drying time of the dust filter foam can be up to 24h or more. Drying time can be shorter when being done in a well-ventilated area.

   Tip: To speed-up drying, allow the filter foam to dry at 50°C max in a well ventilated room.
6. Install the foam in the dust filter. For more information, see “Installing the dust filter”, page 48.

   Caution: Do not install a wet dust filter foam back into the projector under any circumstance. A wet filter foam can have serious safety consequences as well as jeopardize the internal optics of the system.

   Caution: Do not install/use a damaged dust filter. Replace damaged a dust filter immediately with a new dust filter of the same type. See *https://my.barco.com* for the correct replacement part.

8.5 Installing the dust filter

Required tools

Torx screwdriver T10

Required parts

Dust filter

How to install

1. Must a washed foam be reused?
   - ► If **yes**, ensure the foam is thoroughly dried.
   - ► If **no**, go to next step.

   Caution: Do not install a wet dust filter foam back into the projector under any circumstance. A wet filter foam can have serious safety consequences as well as jeopardize the internal optics of the system.

   Caution: Do not install/use a damaged dust filter. Replace damaged a dust filter immediately with a new dust filter of the same type. See https://my.barco.com for the correct replacement part.

2. Place the foam over the studs in the dust filter as illustrated.

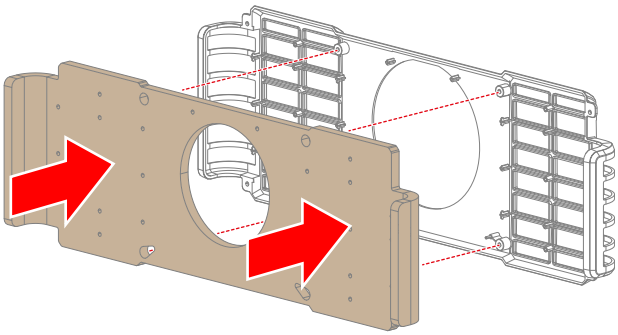


Image 8–5

3. Position the dust filter on the projector as illustrated.

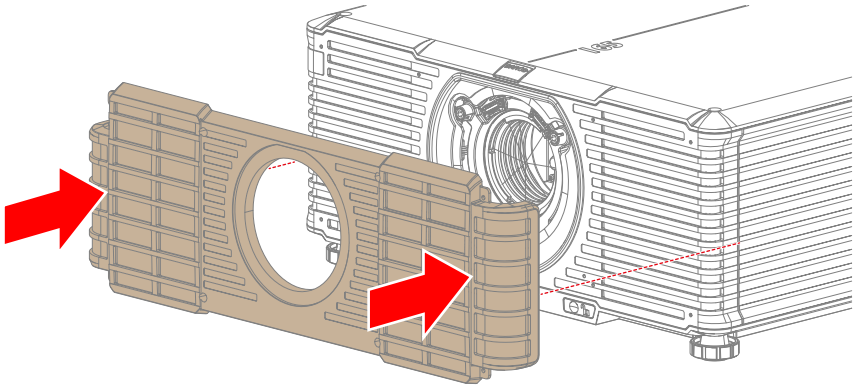


Image 8–6

4. Secure the dust filter with the eight screws (reference 1).

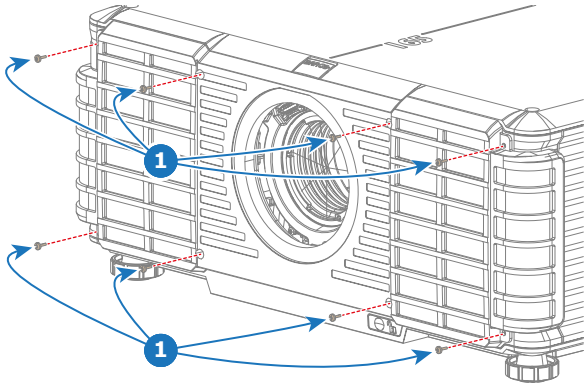


Image 8–7

Projector maintenance

9

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9.1 One month maintenance actions

Perform every month

The monthly maintenance actions, listed below, may be performed by a trained projectionist who is familiar with potential hazards associated with the product.

No.	Maintenance action	Remarks
1	Check the surface of the lens output side for dust (it is not needed to remove the lens from the projector). Only clean if necessary.	Clean the lens output side in case dust is clearly visible upon the surface.
2	If the optional dust filter is installed, review the inspection interval.	Define the interval based on the environment in the location of the projector and the state of the filter. For more information, see “Defining the interval for inspection”, page 44.

9.2 Software update

Software update options

Pulse-based projectors can be updated using one of the following methods:

- **Bulk update**, using *Pulse Toolset*.
- **Remote update**, using *Pulse Lite Prospector*.
- **Local update**, using Pulse Lite OS. For more information, see the following procedure.

Prerequisites

The firmware version must be downloaded from the Barco website and the projector must be powered on. For more information, see:

- The *I65 support page*.
- “Powering on the projector”, page 38.

Required tools

- 8GB+ USB stick formatted in FAT32
- USB Micro-B OTG adapter

How to update

1. Create the following folder on the USB stick: `/Barco/Firmware`.
2. Copy the downloaded *.zip* file to the `/Barco/Firmware` folder on the USB stick.
3. Connect the USB Micro-B OTG adapter to the USB Micro-B port (reference 1) of the control & input board.

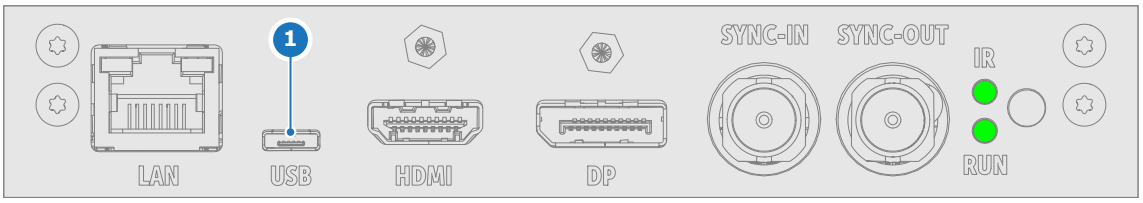


Image 9–1

4. Connect the USB stick to the USB Micro-B OTG adapter.

   A menu is shown over the displayed image with the name of the detected software file.
5. Is the displayed file name correct?

Caution: Do not power off or unplug the projector while the software update is ongoing. Similarly, do not remove the USB flash drive while the software update is ongoing.

- If **yes**, select *Upgrade* with the local keypad or the remote and press enter.
- If **no**, select *Later* with the local keypad or the remote and start the procedure again.

The software is installed by the projector and the projector reboots. This may take several minutes.

9.3 Cleaning the lens

To minimize the possibility of damage to optical coatings, or scratches to lens surfaces follow the cleaning procedure as described here precisely.

Prerequisites

Switch off the projector and wait at least 30 minutes to let everything cool down.

Required tools

- Compressed air
- Clean cotton cloth
- Clean micro fiber lens cleaning cloth (e.g. Toraysee® cloth(s))
- Lens cleaner (e.g. Zeiss lens cleaner, Purosol® or any water based lens cleaner)

How to clean the lens?

1. Blow off dust with clean compressed air (or pressurized air cans[2]) .
2. Clean with lens cleaner together with a clean lens cleaning cloth to remove the dust and contamination. Use big wipes in one single direction.

   Warning: Do not wipe back and forwards across the lens surface as this tends to grind dirt into the coating.

3. Use a dry lens cleaning cloth to remove left liquid or stripes. Polish with small circles.
4. If there are still fingerprints on the surface, wipe them off with lens cleaner together with a clean lens cleaning cloth. Polish again with a dry one.

If smears occur when cleaning lenses, replace the cloth. Smears are the first indication of a dirty cloth.

9.4 Cleaning the exterior of the projector

How to clean the exterior of the projector ?

1. Switch off the projector and unplug the projector from the mains power net.
2. Clean the housing of the projector with a damp cloth. Stubborn stains may be removed with a cloth lightly dampened with a mild detergent solution.

2. Pressurized air cans are not efficient if there is too much dust on the surface, the pressure is too low

Specifications

A

A.1 I65-4K10 specifications

Notes	The specifications in this document are preliminary
Projector type	4K UHD 1-chip DLP digital projector
Technology	0.8" HEP DMD™
IR for NVG	No
Resolution	3840 x 2400 (4K UHD) 1920 x 1200 (native)
Brightness	10000 ISO lumens
Brightness uniformity	>90%
Contrast ratio	Full field 1.600:1 Barco DynaBlack® 25.000:1
Light source	Blue laser phosphor with inorganic phosphor wheel
Light source lifetime	20.000hrs (long life mode 30.000hrs)
Aspect ratio	16:10 Native
Color space	REC 709
Orientation	360° rotation no restrictions
Sealed DLP™ core	Yes
Processing	Pulse Lite electronics
Color correction	Yes
CLO (constant light output)	Yes
Keystone correction	Yes
Image processing	Embedded warp & blend
Picture-by-picture	No
Lens type	ILD
Optical lens shift	Vertical up to 110% depending on lens Horizontal up to 30% depending on lens
Throw Ratio	From 0.35 to 7.4
Lens range	ILD lenses - 0.35:1 / 0.37:1 / 0.5:1 / 0.65-0.8:1 / 0.8-1.0:1 / 1.0-1.4:1 / 1.4-2.1:1 / 2.1-4.0:1 / 4.0-7.4:1
Prime lenses	N/A
Inputs	HDMI™2.0 (HDCP 2.2)/ DP1.4 (HDCP 2.2) RJ45 Ethernet / USB(5v) / BNC 3D sync in-out
Optional Inputs	Intel® SDM-S & SDM-L Compatible
Input resolutions	Including and up to: 1920x1200@120Hz 3840x2400@60Hz
Control	IR RJ45
Network connection	10/100 base-T RJ-45 connection

User interface	Local keypad remote control
Web browser	Yes
Power requirements	100-240V / 15A-6A / 50-60Hz
Power consumption	600W
Standby power	< 0.5W
Noise level (typical at 25°C/ 77°F)	39dB(A)
Circuit board protection	Yes
Operating temperature	0°-40°C / 32°-104°F (sea level)
Operating humidity	10% - 80% RH (non-condensed)
Storage temperature	-20 to 60 °C
Storage humidity	10 - 90% RH (non-condensed)
Dimensions (WxLxH)	522 x 494 x 198 mm 20.5 x 19.4 x 7.8 in
Weight	20,0 kg / 44.1 lbs
Shipping Dimensions	738x600x339 mm 29x24x13 in
Shipping weight	23,7 kg / 52.2 lbs
Standard accessories	Power cord, wireless remote control
Housing	Plastic cover
Certifications	CB CE UKCA CEBEC SGS ICES FCC CCC CEL KC (Korea) RCM (Australia) EAC PSE (Japan) BSMI (Taiwan) BIS (India) CMIM
Warranty	Limited 3 years on parts and labor Extendable up to 5 years Service: single swap of projector

A.2 I65-W10 specifications

Notes	The specifications in this document are preliminary
Projector type	WUXGA 1-chip DLP digital projector
Technology	0.8" HEP DMD™
IR for NVG	No
Resolution	1920 x 1200 (WUXGA)
Brightness	10000 ISO lumens
Brightness uniformity	>90%
Contrast ratio	Full field 1.600:1 Barco DynaBlack® 25.000:1
Light source	Blue laser phosphor with inorganic phosphor wheel

Light source lifetime	20.000hrs (long life mode 30.000hrs)
Aspect ratio	16:10 Native
Color space	REC 709
Orientation	360° rotation no restrictions
Sealed DLP™ core	Yes
Processing	Pulse Lite electronics
Color correction	Yes
CLO (constant light output)	Yes
Keystone correction	Yes
Image processing	Embedded warp & blend
Picture-by-picture	No
Lens type	ILD
Optical lens shift	Vertical up to 110% depending on lens Horizontal up to 30% depending on lens
Throw Ratio	From 0.35 to 7.4
Lens range	ILD lenses - 0.35:1 / 0.37:1 / 0.5:1 / 0.65-0.8:1 / 0.8-1.0:1 / 1.0-1.4:1 / 1.4-2.1:1 / 2.1-4.0:1 / 4.0-7.4:1
Prime lenses	N/A
Inputs	HDMI™2.0 (HDCP 2.2)/ DP1.4 (HDCP 2.2) RJ45 Ethernet / USB(5v) / BNC 3D sync in-out
Optional Inputs	Intel® SDM-S & SDM-L Compatible
Input resolutions	Including and up to: 1920x1200@120Hz 3840x2400@60Hz
Control	IR RJ45
Network connection	10/100 base-T RJ-45 connection
User interface	Local keypad remote control
Web browser	Yes
Power requirements	100-240V / 15A-6A / 50-60Hz
Power consumption	600W
Standby power	< 0.5W
Noise level (typical at 25°C/ 77°F)	39dB(A)
Circuit board protection	Yes
Operating temperature	0°-40°C / 32°-104°F (sea level)
Operating humidity	10% - 80% RH (non-condensed)
Storage temperature	-20 to 60 °C
Storage humidity	10 - 90% RH (non-condensed)

Dimensions (WxLxH)	522 x 494 x 198 mm 20.5 x 19.4 x 7.8 in
Weight	20,0 kg / 44.1 lbs
Shipping Dimensions	738x600x339 mm 29x24x13 in
Shipping weight	23,7 kg / 52.2 lbs
Standard accessories	Power cord, wireless remote control
Housing	Plastic cover
Certifications	CB CE UKCA CEBEC SGS ICES FCC CCC CEL KC (Korea) RCM (Australia) EAC PSE (Japan) BSMI (Taiwan) BIS (India) CMIM
Warranty	Limited 3 years on parts and labor Extendable up to 5 years Service: single swap of projector

A.3 I65-4K13 specifications

Notes	The specifications in this document are preliminary
Projector type	4K UHD 1-chip DLP digital projector
Technology	0.8" HEP DMD™
IR for NVG	No
Resolution	3840 x 2400 (4K UHD) 1920 x 1200 (native)
Brightness	12500 ISO lumens
Brightness uniformity	>90%
Contrast ratio	Full field 1.600:1 Barco DynaBlack® 25.000:1
Light source	Blue laser phosphor with inorganic phosphor wheel
Light source lifetime	20.000hrs (long life mode 30.000hrs)
Aspect ratio	16:10 Native
Color space	REC 709
Orientation	360° rotation no restrictions
Sealed DLP™ core	Yes
Processing	Pulse Lite electronics
Color correction	Yes
CLO (constant light output)	Yes
Keystone correction	Yes
Image processing	Embedded warp & blend
Picture-by-picture	No

Lens type	ILD
Optical lens shift	Vertical up to 110% depending on lens Horizontal up to 30% depending on lens
Throw Ratio	From 0.35 to 7.4
Lens range	ILD lenses - 0.35:1 / 0.37:1 / 0.5:1 / 0.65-0.8:1 / 0.8-1.0:1 / 1.0-1.4:1 / 1.4-2.1:1 / 2.1-4.0:1 / 4.0-7.4:1
Prime lenses	N/A
Inputs	HDMI™2.0 (HDCP 2.2)/ DP1.4 (HDCP 2.2) RJ45 Ethernet / USB(5v) / BNC 3D sync in-out
Optional Inputs	Intel® SDM-S & SDM-L Compatible
Input resolutions	Including and up to: 1920x1200@120Hz 3840x2400@60Hz
Control	IR RJ45
Network connection	10/100 base-T RJ-45 connection
User interface	Local keypad remote control
Web browser	Yes
Power requirements	100-240V / 15A-6A / 50-60Hz
Power consumption	785W
Standby power	< 0.5W
Noise level (typical at 25°C/ 77°F)	39dB(A)
Circuit board protection	Yes
Operating temperature	0°-40°C / 32°-104°F (sea level)
Operating humidity	10% - 80% RH (non-condensed)
Storage temperature	-20 to 60 °C
Storage humidity	10 - 90% RH (non-condensed)
Dimensions (WxLxH)	522 x 494 x 198 mm 20.5 x 19.4 x 7.8 in
Weight	22,3 kg / 49.2 lbs
Shipping Dimensions	738x600x339 mm 29x24x13 in
Shipping weight	26,0 kg / 57.3 lbs
Standard accessories	Power cord, wireless remote control
Housing	Plastic cover
Certifications	CB CE UKCA CEBEC SGS ICES FCC CCC CEL KC (Korea) RCM (Australia) EAC PSE (Japan) BSMI (Taiwan) BIS (India) CMIM
Warranty	Limited 3 years on parts and labor Extendable up to 5 years Service: single swap of projector

A.4 I65-W13 specifications

Notes	The specifications in this document are preliminary
Projector type	WUXGA 1-chip DLP digital projector
Technology	0.8" HEP DMD™
IR for NVG	No
Resolution	1920 x 1200 (WUXGA)
Brightness	12500 ISO lumens
Brightness uniformity	>90%
Contrast ratio	Full field 1.600:1 Barco DynaBlack® 25.000:1
Light source	Blue laser phosphor with inorganic phosphor wheel
Light source lifetime	20.000hrs (long life mode 30.000hrs)
Aspect ratio	16:10 Native
Color space	REC 709
Orientation	360° rotation no restrictions
Sealed DLP™ core	Yes
Processing	Pulse Lite electronics
Color correction	Yes
CLO (constant light output)	Yes
Keystone correction	Yes
Image processing	Embedded warp & blend
Picture-by-picture	No
Lens type	ILD
Optical lens shift	Vertical up to 110% depending on lens Horizontal up to 30% depending on lens
Throw Ratio	From 0.35 to 7.4
Lens range	ILD lenses - 0.35:1 / 0.37:1 / 0.5:1 / 0.65-0.8:1 / 0.8-1.0:1 / 1.0-1.4:1 / 1.4-2.1:1 / 2.1-4.0:1 / 4.0-7.4:1
Prime lenses	N/A
Inputs	HDMI™2.0 (HDCP 2.2)/ DP1.4 (HDCP 2.2) RJ45 Ethernet / USB(5v) / BNC 3D sync in-out
Optional Inputs	Intel® SDM-S & SDM-L Compatible
Input resolutions	Including and up to: 1920x1200@120Hz 3840x2400@60Hz
Control	IR RJ45
Network connection	10/100 base-T RJ-45 connection

User interface	Local keypad remote control
Web browser	Yes
Power requirements	100-240V / 15A-6A / 50-60Hz
Power consumption	785W
Standby power	< 0.5W
Noise level (typical at 25°C/ 77°F)	39dB(A)
Circuit board protection	Yes
Operating temperature	0°-40°C / 32°-104°F (sea level)
Operating humidity	10% - 80% RH (non-condensed)
Storage temperature	-20 to 60 °C
Storage humidity	10 - 90% RH (non-condensed)
Dimensions (WxLxH)	522 x 494 x 198 mm 20.5 x 19.4 x 7.8 in
Weight	22,3 kg / 49.2 lbs
Shipping Dimensions	738x600x339 mm 29x24x13 in
Shipping weight	26,0 kg / 57.3 lbs
Standard accessories	Power cord, wireless remote control
Housing	Plastic cover
Certifications	CB CE UKCA CEBEC SGS ICES FCC CCC CEL KC (Korea) RCM (Australia) EAC PSE (Japan) BSMI (Taiwan) BIS (India) CMIM
Warranty	Limited 3 years on parts and labor Extendable up to 5 years Service: single swap of projector

A.5 I65-4K16 specifications

Notes	The specifications in this document are preliminary
Projector type	4K UHD 1-chip DLP digital projector
Technology	0.8" HEP DMD™
IR for NVG	No
Resolution	3840 x 2400 (4K UHD) 1920 x 1200 (native)
Brightness	15000 ISO lumens
Brightness uniformity	>90%
Contrast ratio	Full field 1.600:1 Barco DynaBlack® 25.000:1

Light source	Blue laser phosphor with inorganic phosphor wheel
Light source lifetime	20.000hrs (long life mode 30.000hrs)
Aspect ratio	16:10 Native
Color space	REC 709
Orientation	360° rotation no restrictions
Sealed DLP™ core	Yes
Processing	Pulse Lite electronics
Color correction	Yes
CLO (constant light output)	Yes
Keystone correction	Yes
Image processing	Embedded warp & blend
Picture-by-picture	No
Lens type	ILD
Optical lens shift	Vertical up to 110% depending on lens Horizontal up to 30% depending on lens
Throw Ratio	From 0.35 to 7.4
Lens range	ILD lenses - 0.35:1 / 0.37:1 / 0.5:1 / 0.65-0.8:1 / 0.8-1.0:1 / 1.0-1.4:1 / 1.4-2.1:1 / 2.1-4.0:1 / 4.0-7.4:1
Prime lenses	N/A
Inputs	HDMI™2.0 (HDCP 2.2)/ DP1.4 (HDCP 2.2) RJ45 Ethernet / USB(5v) / BNC 3D sync in-out
Optional Inputs	Intel® SDM-S & SDM-L Compatible
Input resolutions	Including and up to: 1920x1200@120Hz 3840x2400@60Hz
Control	IR RJ45
Network connection	10/100 base-T RJ-45 connection
User interface	Local keypad remote control
Web browser	Yes
Power requirements	100-240V / 15A-6A / 50-60Hz
Power consumption	800W
Standby power	< 0.5W
Noise level (typical at 25°C/ 77°F)	40dB(A)
Circuit board protection	Yes
Operating temperature	0°-40°C / 32°-104°F (sea level)
Operating humidity	10% - 80% RH (non-condensed)
Storage temperature	-20 to 60 °C

Storage humidity	10 - 90% RH (non-condensed)
Dimensions (WxLxH)	522 x 494 x 198 mm 20.5 x 19.4 x 7.8 in
Weight	22,64 kg / 49.9 lbs
Shipping Dimensions	738x600x339 mm 29x24x13 in
Shipping weight	26,4 kg / 58.2 lbs
Standard accessories	Power cord, wireless remote control
Housing	Plastic cover
Certifications	CB CE UKCA CEBEC SGS ICES FCC CCC CEL KC (Korea) RCM (Australia) EAC PSE (Japan) BSMI (Taiwan) BIS (India) CMIM
Warranty	Limited 3 years on parts and labor Extendable up to 5 years Service: single swap of projector

A.6 I65-W16 specifications

Notes	The specifications in this document are preliminary
Projector type	WUXGA 1-chip DLP digital projector
Technology	0.8" HEP DMD™
IR for NVG	No
Resolution	1920 x 1200 (WUXGA)
Brightness	15000 ISO lumens
Brightness uniformity	>90%
Contrast ratio	Full field 1.600:1 Barco DynaBlack® 25.000:1
Light source	Blue laser phosphor with inorganic phosphor wheel
Light source lifetime	20.000hrs (long life mode 30.000hrs)
Aspect ratio	16:10 Native
Color space	REC 709
Orientation	360° rotation no restrictions
Sealed DLP™ core	Yes
Processing	Pulse Lite electronics
Color correction	Yes
CLO (constant light output)	Yes
Keystone correction	Yes
Image processing	Embedded warp & blend
Picture-by-picture	No

Lens type	ILD
Optical lens shift	Vertical up to 110% depending on lens Horizontal up to 30% depending on lens
Throw Ratio	From 0.35 to 7.4
Lens range	ILD lenses - 0.35:1 / 0.37:1 / 0.5:1 / 0.65-0.8:1 / 0.8-1.0:1 / 1.0-1.4:1 / 1.4-2.1:1 / 2.1-4.0:1 / 4.0-7.4:1
Prime lenses	N/A
Inputs	HDMI™2.0 (HDCP 2.2)/ DP1.4 (HDCP 2.2) RJ45 Ethernet / USB(5v) / BNC 3D sync in-out
Optional Inputs	Intel® SDM-S & SDM-L Compatible
Input resolutions	Including and up to: 1920x1200@120Hz 3840x2400@60Hz
Control	IR RJ45
Network connection	10/100 base-T RJ-45 connection
User interface	Local keypad remote control
Web browser	Yes
Power requirements	100-240V / 15A-6A / 50-60Hz
Power consumption	800W
Standby power	< 0.5W
Noise level (typical at 25°C/ 77°F)	40dB(A)
Circuit board protection	Yes
Operating temperature	0°-40°C / 32°-104°F (sea level)
Operating humidity	10% - 80% RH (non-condensed)
Storage temperature	-20 to 60 °C
Storage humidity	10 - 90% RH (non-condensed)
Dimensions (WxLxH)	522 x 494 x 198 mm 20.5 x 19.4 x 7.8 in
Weight	22,64 kg / 49.9 lbs
Shipping Dimensions	738x600x339 mm 29x24x13 in
Shipping weight	26,4 kg / 58.2 lbs
Standard accessories	Power cord, wireless remote control
Housing	Plastic cover
Certifications	CB CE UKCA CEBEC SGS ICES FCC CCC CEL KC (Korea) RCM (Australia) EAC PSE (Japan) BSMI (Taiwan) BIS (India) CMIM
Warranty	Limited 3 years on parts and labor Extendable up to 5 years Service: single swap of projector

A.7 HDMI 2.0 input specifications

Supported HDMI 2.0 features:

Specification	Value
Pixel rate	25 – 600 MHz pixel clock
HDCP support	• HDCP 1.4 • HDCP 2.x
Color space	• YCbCr 4:2:0 • YCbCr 4:2:2 • YCbCr 4:4:4 • RGB 4:4:4
Color depth	• 24 bpp • 30 bpp • 36 bpp
3D support	Not supported
Audio	Not supported
Video timings progressive	• 640x480 @59.94,63.09,66.61,75,76.59 • 720x400 @69.75,87.28 • 720x480 @59.94 • 720x576 @50 • 800x600 @56.25,60.32,72.19,75,119.97 • 832x624 @74.84 • 1024x768 @60,70.07,75.03,119.99 • 1152x870 @74.86 • 1280x720 @50,60,120 • 1280x800 @59.81,74.93 • 1280x1024 @60.02,75.02 • 1360x765 @59.85 • 1360x768 @60.02 • 1400x1050 @59.98 • 1440x480 @59.94 • 1600x1200 @60 • 1680x1050 @59.95 • 1920x1080 @24,25,30,50,60,120 • 1920x1200 @50,59.88,59.95,60,120 • 2048x1080 @47.91,47.95 • 2560x1600 @50,60 • 3840x2160 @24,25,30,50,60 • 3840x2400 @49.98,50,60

A.8 DisplayPort 1.4 input specifications

Supported DP 1.4 features:

Specification	Value
Pixel rate	Up to 600MHz pixel clock
Color format support	• RGB • YCbCr 4:2:2 • YCbCr 4:4:4
Color depth support	• 18 bpp

Specification	Value
	• 24 bpp • 30 bpp • 36 bpp
Data rate support	• 1.62 Gbps: Reduced Bit Rate (RBR) • 2.7 Gbps: High Bit Rate (HBR) • 5.4 Gbps: High Bit Rate 2 (HBR2) • 8.1 Gbps: High Bit Rate 3 (HBR3)
HDCP support	• HDCP 1.3 • HDCP 2.x
Audio	Not supported
3D support	Not supported
Video timings progressive	• 640x480 @59.94,63.09,66.61,75,76.59 • 720x400 @69.75,87.28 • 720x480 @59.94 • 720x576 @50 • 800x600 @56.25,60.32,72.19,75,119.97 • 832x624 @74.84 • 1024x768 @60,70.07,75.03,119.99 • 1152x870 @74.86 • 1280x720 @50,60,120 • 1280x800 @59.81,74.93 • 1280x1024 @60.02,75.02 • 1360x765 @59.85 • 1360x768 @60.02 • 1400x1050 @59.98 • 1440x480 @59.94 • 1600x1200 @60 • 1680x1050 @59.95 • 1920x1080 @24,25,30,50,60,120 • 1920x1200 @50,59.88,59.95,60,120 • 2048x1080 @47.91,47.95 • 2560x1600 @50,60 • 3840x2160 @24,25,30,50,60 • 3840x2400 @49.98,50,60

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B.1 Product and contact references

Made in information

The made in country is indicated on the product ID label on the product itself.

Production date

The month and year of production is indicated on the product ID label on the product itself.

Manufacturer address

Refer to the cover page of this manual for the manufacturer address.

Factory address

Factory: Barco NV
President Kennedypark 35, 8500 Kortrijk, Belgium

Factory: Barco (Wuxi) Technology Co., Ltd.
No. 38, Chunhui Middle Road, XiShan District, 214101 Wuxi CHINA
工厂：巴可（无锡）科技有限公司
中国无锡市锡山区春晖中路38号，邮编214101

Importers contact information

To find your local importer, contact Barco directly or one of Barco's regional offices via the contact information given on Barco's web site, *https://www.barco.com*.

B.2 Product compliance EU

Disposal Information



Waste Electrical and Electronic Equipment (WEEE)

This symbol on the product indicates that, under the European Directive 2012/19/EU governing waste from electrical and electronic equipment, this product must not be disposed of with other municipal waste. Please dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources.

For more information about recycling of this product, please contact your local city office or your municipal waste disposal service. For details, please visit the Barco website at: *https://www.barco.com/about/sustainability/waste-of-electronic-equipment-customers*

Disposal of batteries in the product



This product contains batteries covered by the Directive 2006/66/EC which must be collected and disposed of separately from municipal waste.

If the battery contains more than the specified values of lead (Pb), mercury (Hg) or cadmium (Cd), these chemical symbols will appear below the crossed-out wheeled bin symbol.

By participating in separate collection of batteries, you will help to ensure proper disposal and to prevent potential negative effects on the environment and human health.

EMC notices Europe

EN55032/CISPR32 Class A MME (MultiMedia Equipment)

Warning : This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

CE Conformity

Hereby, Barco NV declares that the product **I65** is in compliance with the Directive 2014/35/EU (Low Voltage Directive) and Directive 2014/30/EU (Electromagnetic Compatibility Directive).

B.3 Product compliance UK

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

B.4 Product compliance US

Federal Communications Commission (FCC Statement)

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 may cause harmful interference, in which case the user will be responsible for correcting any interference at his own expense

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

FCC responsible: Barco Inc.
3059 Premiere Parkway Suite 400
30097 Duluth GA, United States
Tel: +1 678 475 8000

B.5 Product compliance Turkey

Turkey RoHS compliance

Türkiye Cumhuriyeti: AEEE Yönetmeliğine Uygundur.
[Republic of Turkey: In conformity with the WEEE Regulation]

B.6 Product compliance EAC

EurAsian Conformity (EAC)

This product complies with the Safety of Low-Voltage Equipment (LVE Technical Regulation 004/2011, CU TR 004/2011) and the Electromagnetic Compatibility of Technical Products (EMC Technical regulation, CU TR 020/2011) and Restriction of use of Hazardous Substances in radio and electronic devices (RoHS Technical regulation, CU TR 037/2016).

B.7 Product compliance China

EMC notices China

GB/T 9254.1 A级ITE(信息技术设备)

警告：在居住环境中，运行此设备可能会造成无线电干扰。

中国能效标识 (CEL)

本设备对应的中国能效标识（CEL）及相关能效测试数据（包括投影光效和光输出等），均基于本机装配 Barco R9803061 标准投影镜头测得。

产品中有害物质的名称及含有信息表 (China RoHS compliance)

根据中华人民共和国《电器电子产品有害物质限制使用管理办法》规定，以下部分列出了Barco产品中可能包含的有毒和/或有害物质的名称和含量。

部件名称 Component name	有害物质 Hazardous Substances or Elements									
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr^{6+})	多溴联苯 (PBB)	多溴二苯醚 (PBDE)	邻苯二甲酸二正丁酯 (DBP)	邻苯二甲酸二异丁酯 (DIBP)	邻苯二甲酸丁基苄酯 (BBP)	邻苯二甲酸二(2-乙基）己酯 (DEHP)
印制电路配件 Printed Circuit Assemblies	X	O	O	O	O	O	O	O	O	O
外接电(线)缆 External cables	O	O	O	O	O	O	O	O	O	O
内部线路 Internal wiring	X	O	O	O	O	O	O	O	O	O
镜头支架 Lens holder	O	O	O	O	O	O	O	O	O	O
光学镜头 Optical lenses	O	O	O	O	O	O	O	O	O	O
紧固件,螺旋,垫圈,螺帽 Fasteners	X	O	O	O	O	O	O	O	O	O
激光发生器 Laser	O	O	O	O	O	O	O	O	O	O
电源供应器 Power Supply Unit	X	O	O	O	O	O	O	O	O	O
风扇 Fan	X	O	O	O	O	O	O	O	O	O
附電池遙控器 Remote control	X	O	O	O	O	O	O	O	O	O

注1：
O：表示该有害物质在该部件所有均质材料中的含量均不超出电器电子产品有害物质限制使用国家标准要求。
X：表示该有害物质至少在该部件的某一均质材料中含量超出电器电子产品有害物质限制使用国家标准要求。
注2：
以上未列出的部件，表明其有害物质含量均不超出电器电子产品有害物质限制使用国家标准要求。



B.8 Product compliance Taiwan

EMC notices Taiwan

BSMI Taiwan Class A statement

警告使用者：此為甲類資訊技術設備，於居住環境中使用，可能會造成射頻擾動，在此情況下，使用者會被要求採取某些適當的對策。

報驗義務人資訊 (BSMI Reporting Obligor Information)

製造商（報驗廠商）：巴可股份有限公司/新北市板橋區新站路16號33樓。

一、 商品在國內產製時，為商品之產製者或輸出者。
但商品委託他人產製，並以在國內有住所或營業所之委託者名義，於國內銷售或輸出時，為委託者。

二、 商品在國外產製時，為商品之輸入者。
但商品委託他人輸入，並以在國內有住所或營業所之委託者名義，於國內銷售時，為委託者。

三、 商品之產製者、輸出入者、委託產製或委託輸出入者不明或無法追查時，為銷售者。
前項所稱產製者，包括具有下列情形之一者：
一、組裝者：商品由個別零組件以組裝銷售。
二、修改者：符合檢驗規定之商品於進入市場前，為銷售目的而修改。

限用物質含有情況標示聲明書 (Declaration of the Presence Condition of the Restricted Substances Marking)

設備名稱： 投影機， 型號（型式）：GPB-A, GPB-B, GPB-C, GPB-D, GPB-E, GPB-F **Equipment name: Projector, Type designation: GPB-A, GPB-B, GPB-C, GPB-D, GPB-E, GPB-F**						
	限用物質及其化學符號 **Restricted substances and its chemical symbols**					
單元 **Unit**	**鉛** **Lead (Pb)**	**汞** **Mercury (Hg)**	**鎘** **Cadmium (Cd)**	**六價鉻** **Hexavalent chromium (Cr^{6+})**	**多溴聯苯** **Polybrominated biphenyls (PBB)**	**多溴二苯醚** **Polybrominated diphenyl ethers (PBDE)**
印製電路板配件 Printed Circuit Assemblies	—	○	○	○	○	○
外接電（線）纜 External cables	○	○	○	○	○	○
內部線路 Internal wiring	—	○	○	○	○	○
光學鏡頭 Optical lenses	○	○	○	○	○	○
鏡頭支架 Lens holder	○	○	○	○	○	○
螺帽, 螺釘（栓），螺旋（釘），墊圈, 緊固件 Nuts, bolts, screws, washers, fasteners	—	○	○	○	○	○
激光發生器 Laser	○	○	○	○	○	○
電源供應器	—	○	○	○	○	○

設備名稱： 投影機， 型號（型式）：GPB-A, GPB-B, GPB-C, GPB-D, GPB-E, GPB-F Equipment name: Projector, Type designation: GPB-A, GPB-B, GPB-C, GPB-D, GPB-E, GPB-F						
	限用物質及其化學符號 Restricted substances and its chemical symbols					
單元 Unit	鉛 Lead (Pb)	汞 Mercury (Hg)	鎘 Cadmium (Cd)	六價鉻 Hexavalent chromium (Cr^{6+})	多溴聯苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
Power Supply Unit						
風扇 Fan	—	○	○	○	○	○
遙控器 Remote Control	—	○	○	○	○	○
備考1.〝超出0.1 wt %〞及〝超出0.01 wt %〞係指限用物質之百分比含量超出百分比含量基準值。 Note 1：“Exceeding 0.1 wt %” and “exceeding 0.01 wt %” indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition. 備考2.〝○〞係指該項限用物質之百分比含量未超出百分比含量基準值。 Note 2：“○” indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence. 備考3.〝—〞係指該項限用物質為排除項目。 Note 3：The “—” indicates that the restricted substance corresponds to the exemption.						

B.9 Trademark notice

HDMI™

The terms HDMI, HDMI High-Definition Multimedia Interface, HDMI trade dress and the HDMI Logos are trademarks or registered trademarks of HDMI Licensing Administrator, Inc.

DisplayPort™

DisplayPort™, the DisplayPort™ logo and DisplayPortHDR™ logo are trademarks owned by the Video Electronics Standards Association (VESA®) in the United States and other countries.

DLP™

DLP® and the DLP logo are registered trademarks of Texas Instruments.

Intel™

Intel® is a trademark of Intel corporation or its subsidiaries.

All other trademarks and registered trademarks are trademarks or registered trademarks of their respective holders. In this manual, ™ and ® marks are not specified.

B.10 Product privacy statement

About

Learn more about Barco's Product Privacy Statement:

https://www.barco.com/en/about/trust-center/product-privacy-statement.

Which data is captured and why

Following data[3] is captured for general secure operation of the product.

- IP addresses
- User ID information
- Date and time information
- Mobile network information
- Network configuration information
- Device identification information
- Device operational conditions
- Device environmental conditions
- Device performance metric
- Device configuration information
  - Resolution
  - Brightness
- Device input configuration
  - Active inputs
  - Input resolution

Data retention mechanism

An administrator should modify or delete a user (upon user request, or when the user does not work for the company anymore), either via the Users feature, or via a factory reset executed as administrator.

Logs may contain user names and IP addresses and are subject to the retention policy, but cannot be deleted by the user. The user can send a request to dataprotection@barco.com.

3. Only if applicable for the product type and model.

Glossary

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 eye 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.

List of tools

8GB+ USB stick formatted in FAT32
Bucket with hot water
Clean cotton cloth
Clean micro fiber lens cleaning cloth (e.g. Toraysee® cloth(s))
Compressed air
Lens cleaner (e.g. Zeiss lens cleaner, Purosol® or any water based lens cleaner)
Sodium carbonate, 30 gram (handful) per liter hot water
Torx screwdriver T10
USB Micro-B OTG adapter
Vacuum cleaner with a soft brush suction nuzzle.

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