I600

User guide

BARCO

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Changes

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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

About this document

Read this document attentively. It contains important information to prevent personal injury while installing and using the I600 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 I600 product.

Clarification of the term “I600” used in this document

References in this document to the term “I600” means that the content is applicable for following Barco products:

- I600-4K8, I600-4K10, I600-4K15

Model certification name

- I600-4K8 : GPI-A
- I600-4K10 : GPI-B
- I600-4K15 : GPI-C

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 23.7 kg (52.3 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 17.
- 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 17.
- 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= 5°C (41°F) to 40°C (104°F)
- Rated humidity = 10% 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 I600. 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

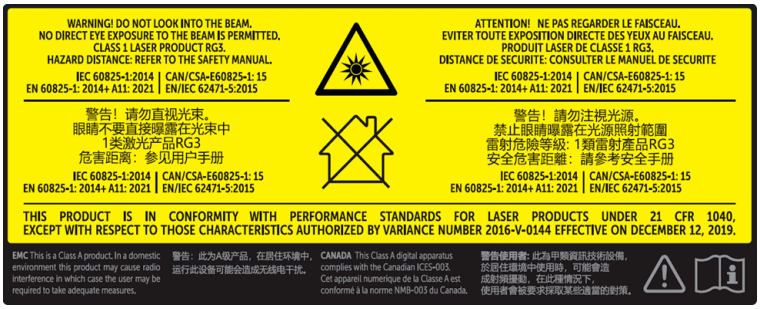
For safe handling information on chemical products, consult the Safety Data Sheet (SDS). SDSs are available upon request via safetydatasheets@barco.com.

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. 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 in function of modifying optics”, page 21.

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.

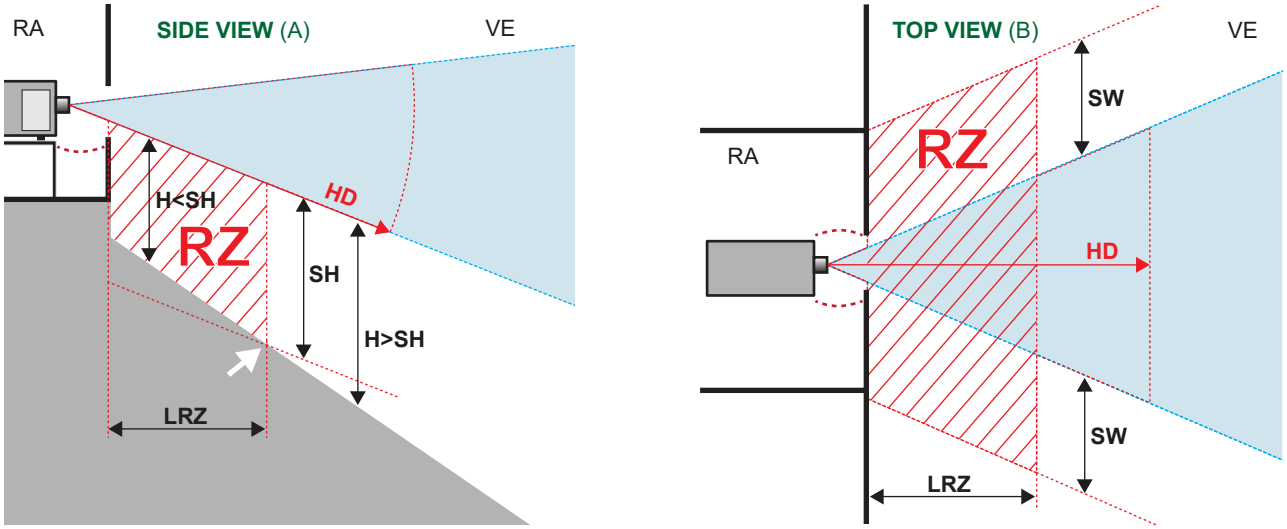


Image 1–1

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.

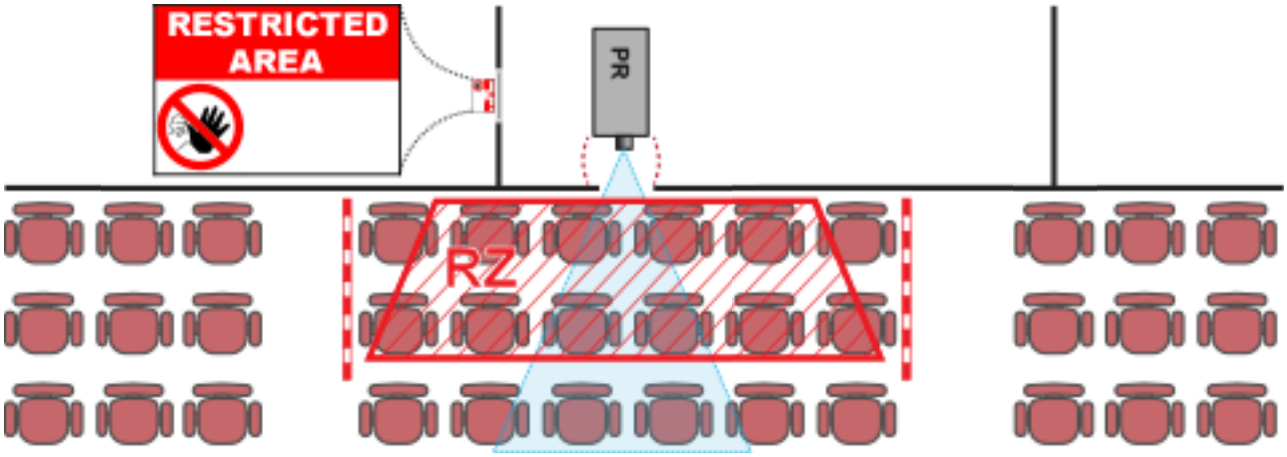


Image 1–2

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).

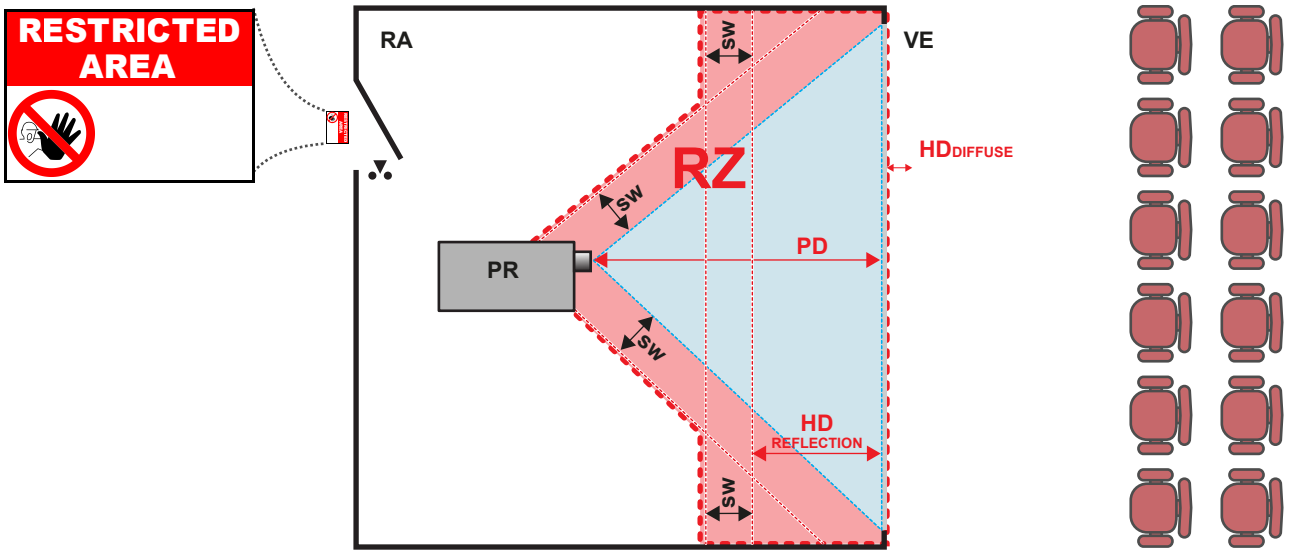


Image 1–3

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 17, 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 17, 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 in function of modifying optics”, page 21.

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

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 in function of modifying optics

Hazard distance

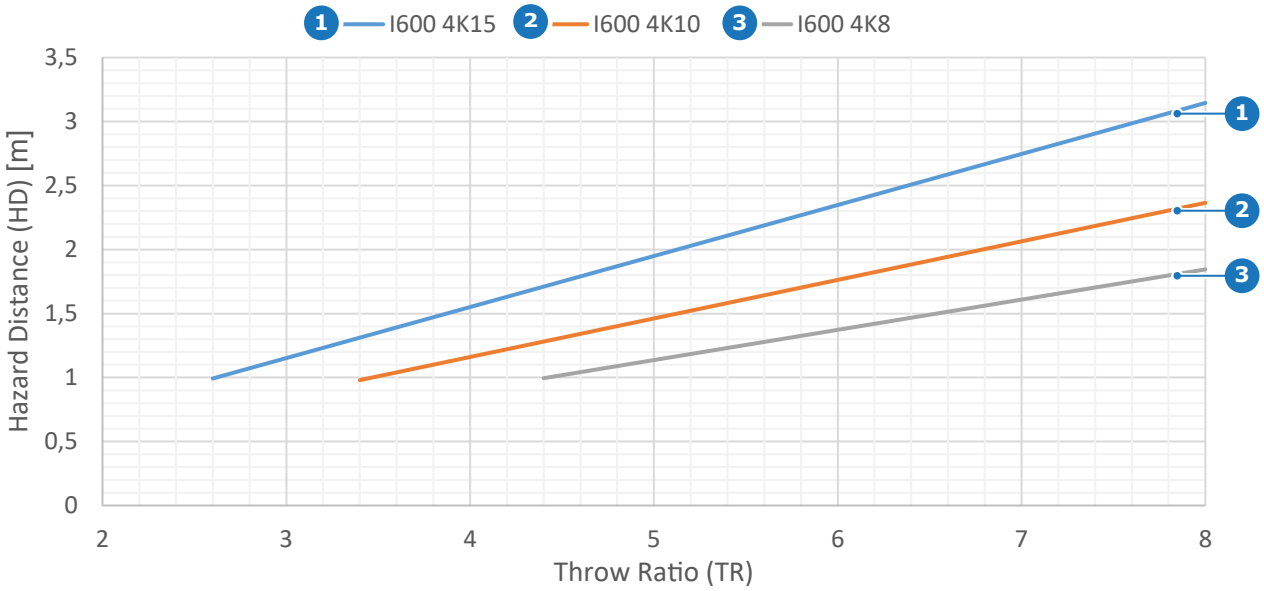


Image 1–4

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

L'information des consommateurs sur la règle de tri

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.

I600 introduction 2

About this chapter

This chapter and by extension this whole document, the **I600 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. It does not contain installation instructions and does not describe the Pulse graphic user interface. Refer to the **I600 installation manual** for detailed installation instructions and to the **Pulse OSD user guide** for all software features of the projector.

The Pulse software has regular new releases due to continuous improvements. Hence, the ***Pulse OSD*** user guide is subject to updates. Download the latest version of the user guide from the Barco website using following link: *https://www.barco.com/support*.

For detailed product specifications see the appendix chapters: “Specifications”, page 71, and following.

2.1 Projector orientation

Orientation convention

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

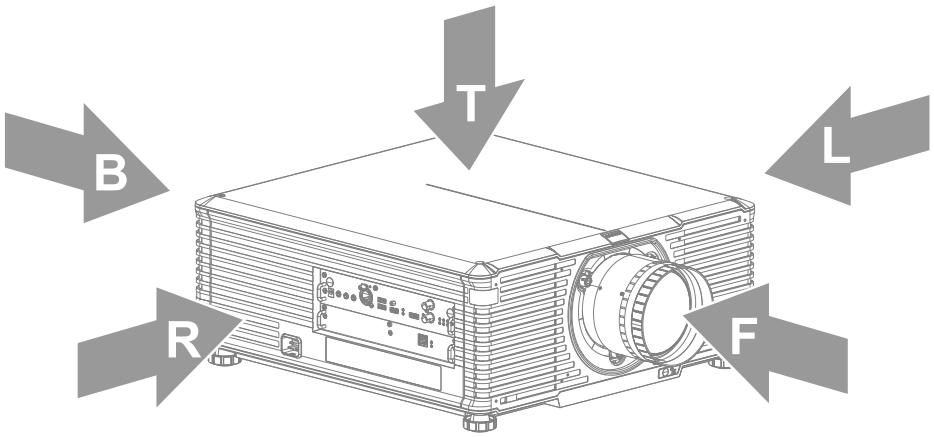


Image 2–1

T Top
L Left
F Front
R Right
B Back

2.2 Projector components

Component location

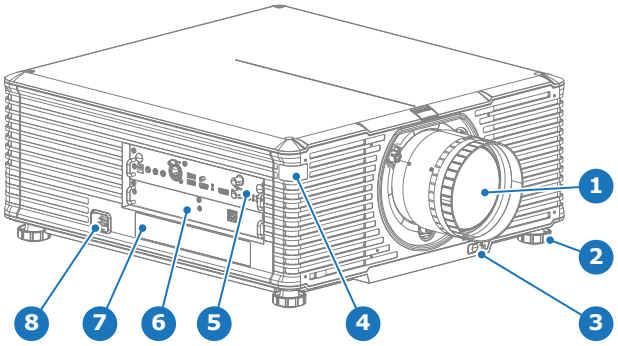


Image 2–2

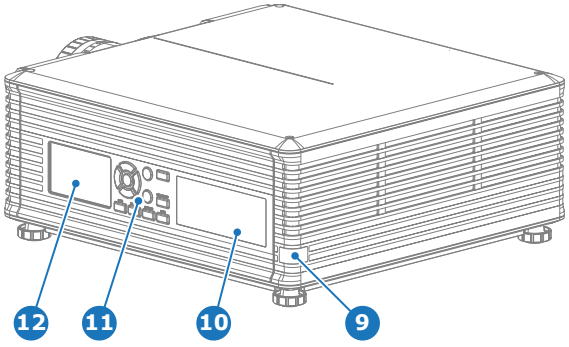


Image 2–3

1 Projection lens
2 Adjustable feet (x4)
3 Lens unlock button
4 Infra Red receiver front
5 Control & Communication
6 Optional input slot
7 Product ID label
8 Mains input socket
9 Infra Red reiver back
10 Safety label
11 Local keypad
12 LCD touch panel

2.3 Projector airflow

Air inlets and outlets

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

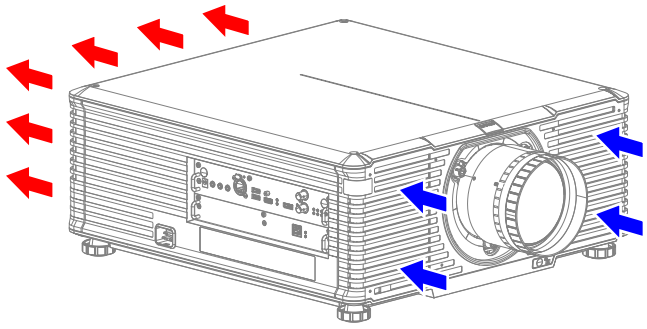


Image 2–4

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.

2.4 Projector status

Projector status indicator LEDs

The Control & Communication module contains four status LEDs at the right side of the front panel. These LEDs allows a quick status analyses of the projector. For explanatory see table hereunder.

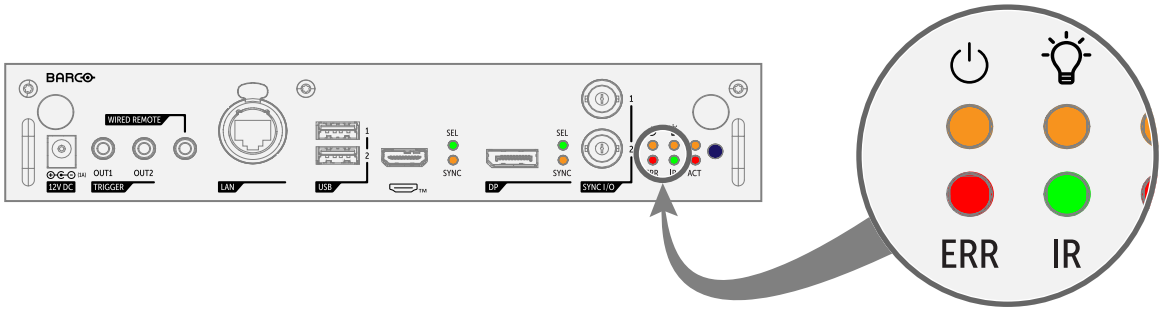


Image 2–5 Location of projector status LEDs.

LED	Color status	Description
Power	Off	Projector is in ECO STANDBY mode, or is powering up
	RED	Projector is in STANDBY mode
	ORANGE	Projector is in READY mode
	GREEN	Projector is ON
Illumination	Off	Light source is OFF
	RED	No light source detected
	ORANGE	Light source is on in ECO mode
	GREEN	Light source is on in normal mode
	GREEN-ORANGE	Light source is on in CLO mode
ERR	Off	No error
	RED toggles on/off	Error
	ORANGE toggles on/off	Warning
IR	RED	IR signal received
	GREEN	IR signal acknowledged

I600 software

3

About this chapter

This chapter provides an overview of the various software components integrated with the I600 projector, including the Pulse OSD interface, Pulse Prospector web service, Pulse Toolset, Pulse Mobile App, cloud applications like Web Analyzer and Insights Management Suite (IMS), and essential information on accounts and security.

3.1 Pulse OSD

Introduction to Pulse OSD

The Pulse On-Screen Display (OSD) is the graphical user interface designed for Pulse-based projectors. It allows users to configure, control, and monitor various aspects of the projector. With the Pulse OSD, you can perform tasks such as source selection, image adjustments, lens manipulation, managing profiles, and controlling advanced projector settings.

Key Features

- **Dashboard**: Provides a quick overview of the current projector settings and condition.
- **Navigation**: Users can navigate through the OSD menus using the local keypad or the remote-control unit.
- **User Interface**: Each feature is represented by a pane in the user interface, making it easy to access and manage different settings.

Pulse OSD user guide

All features of the Pulse OSD are described in detail in the separate **Pulse OSD user guide**. This guide is applicable to all Pulse-based projectors. However, depending on the specific projector model, some features may not be available. If a feature is not available for a particular model, this will be noted at the beginning of the chapter about that feature.

The Pulse software has regular new releases due to continuous improvements. Hence, the **Pulse OSD user guide** is subject to updates. Download the latest version of the user guide from the Barco website using following link: *https://www.barco.com/support*.

Authentication

For information on logging in, please refer to the chapter “User accounts and security”, page 30, or see Pulse OSD user guide.

3.2 Pulse Prospector

About Pulse Prospector

Pulse Prospector is a built-in web application in the projector. The application provides all the necessary tools to configure and control the connected projector remotely. It is readily available on the connected projector without any additional software installation. It is accessible via a web browser and is fully supported on iOS and Android devices.

Pulse Prospector is supported from projector software version 2.5 onwards.

Prerequisites

- Projector software package 2.5 or later must be installed.
- In order to connect a device (e.g., laptop) with the projector, both the device and the projector must operate within the same network (or the device needs to have full access to the projector network).

It is recommended to upgrade the web browser to the latest version available for the best viewing experience, compatibility and security.

Pulse Prospector user guide

All features of the Pulse Prospector are described in a separate user guide which is applicable for all Pulse based projectors. Hence, each menu or menu group in the user guide is proceeded with a “**Location and availability**” section wherein the relevant projector models and accounts are mentioned.

The Pulse software has regular new releases due to continuous improvements. Hence, the Pulse Prospector user guide is subject to updates. Download the latest version of the user guide from the Barco website using following link: *https://www.barco.com/support*.

How to connect with Pulse Prospector

1. Start a web browser.
2. Enter the IP address of the projector in the address bar of the browser and confirm.

   Tip: The projector IP address is visible on the Dashboard of the projector LCD touch panel.

   Note: Depending on the configuration of the browser, a security warning could be displayed. To prevent this warning in the future, the product certificate must be trusted as a root certificate in the browser. For more info, contact the local IT responsible.

   Depending on the projector model and installed Pulse software version, either the Pulse Prospector login page or home page is displayed.
3. Fill in the login credentials to logon.

   Note: For information on logging in, please refer to the chapter “User accounts and security”, page 30, or see Pulse Prospector user guide.

3.3 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 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 separate user guide.

Download Pulse Toolset

Download the latest version of the Pulse Toolset and related user guide from the Barco website using following link: *https://www.barco.com/support?pn=R9804320*

3.4 Insights Management Suite

About Insights Management Suite

Insights Management Suite (IMS) is an IoT platform for monitoring, diagnosing, and controlling projectors. It allows centralized management of all projectors, improving efficiency and troubleshooting. The suite stores usage data and light-source run-times automatically in the cloud, reducing manual administration. The live dashboard provides real-time operating conditions for effective fleet management. Security features include encrypted communication and adjustable connectivity settings.

Insights Management Suite user guide

All features of the Insights Management Suite are described in a separate user guide. Download the latest revision of the Insights Management Suite user guide from the Barco website using following link: *https://www.barco.com/support*.

3.5 Web Analyzer

About Web Analyzer

The Web Analyzer is a powerful cloud-based and free web tool which gives quick access to the log files, aka the black box, of your projector(s). With a simple drag and drop of your diagnostic package, you get access to an intuitive dashboard and analysis tool for effective root cause finding and health optimization.

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

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

3.6 Pulse Mobile app

About Pulse Mobile app

The Pulse Mobile app connects and controls Pulse projectors from a mobile device. It serves as a virtual remote controller for setup, configuration, monitoring, and adjusting projection parameters. Users can tweak lens adjustments, projector orientation, shutter power, test patterns, and black level settings. The app is available for download in the iOS and Android stores and on the Barco website.

3.7 User accounts and security

About authentication

To enhance the security of the Pulse-based projectors, authentication is required. Authentications is done by at each startup by logging in with user name and password.

PIN code authentication is disabled by default on new devices. However the use of a PIN code can be enabled for end users, power users and administrators.

User group credentials

There are four user groups in total. Three user groups are visible and have a default user name and password.

User group	Default user name[1]	Default password[2]	Default PIN
End User	user	default1234	69905
Power User	poweruser	default1234	292920
Administrator	admin	default1234	297081

There is one hidden user group available with fixed credentials, intended for service activities that can only be performed by authorized staff:

User group	User name	Password	PIN
Service Partner	service	On request (see following chapter)	Not available

CAUTION: For security reasons, it is strongly recommended to change the default password and pin codes as soon as possible. Refer to the Pulse Prospector user guide for more info.

1. User names are case sensitive
2. Passwords are case sensitive

Password and pin authentication for user group “service partner”

The password and pin code for the service partner user group are confidential for security reasons. The password and pin code can only be obtained if the user is a Barco certified service partner.

For the Service Partner password, send a request to Barco help desk, including the serial number of the projector(s). Help desk will generate and share the password. Each password is uniquely linked to the serial number of a projector and does not change over time.

Role of the user groups

Groups	Features[3]
End user	• Can use the basic Pulse features
Power user	• Can use all menu features the end user has access to • Can use the *Security* menu features • Can use the *Diagnostic* menu • Can upload new firmware via USB • Can use the following advanced settings features: - *Color Wheel* - *Native RealColor* - *Statistics* - *Tilt sensor calibration* - *Laser banks* - *Optical filter*
Administrator	Can use all menu features the power user has access to. Can use all features of the *PJLink* menu. Can create and delete standard users, change user settings Can change system-wide login settings
Service	• Hidden user account, reserved for certified service partners. • Cannot be deleted, renamed or otherwise edited. • Can use all menu features the administrator has access to. • Can use the following advanced settings features: - *Factory native RealColor* - *Pixel shift* - *TIM curing* - *Laser pulsing*

3. Features depend on projector model and software version.

4 Local keypad

4.1 Local keypad functions

Local keypad overview

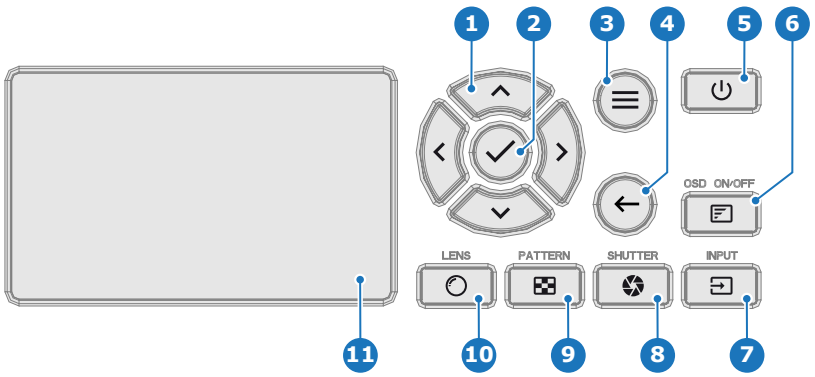


Image 4–1

1 Navigation
2 Confirmation
3 Menu enter/exit
4 Menu back
5 Power On/Off
6 OSD On/Off
7 Input selection
8 Shutter open/close
9 Test patterns
10 Lens menu
11 LCD touch panel

Functionality

The local keypad gives direct access to several functions, in addition, access to the Pulse menu system.

The local keypad has a backlight that can be switched on and off manually. By default the light turns off after 5 minutes.

Refer to the ***Pulse OSD*** user guide for detailed guidance on all software features of the projector.

The Pulse software has regular new releases due to continuous improvements. Hence, the ***Pulse OSD*** user guide is subject to updates. Download the latest version of the user guide from the Barco website using following link: https://www.barco.com/support.

4.2 Local keypad backlight

Button backlight status

The **Power** and **Shutter** buttons are equipped with white, blue and red backlit LEDs. The other keys are only equipped with white and blue backlit LEDs. The LEDs are controlled according to the features available.

Button	Color status	Description
Power button 	Short WHITE pulse	Projector starts up (booting), or is in ECO STANDBY
	Blinking WHITE	Firmware update, or in transition from ECO STANBY to STANDBY
	Solid WHITE	Projector is in STANDBY or READY mode
	Blinking BLUE	Projector goes to ON mode
	Solid BLUE	Projector is ON
	Blinking RED	Error condition
Shutter button 	Off (no color)	Projector is OFF, starts up, or is in STANDBY or READY mode
	Solid WHITE	Projector is ON, shutter is open
	Solid RED	Projector is ON, shutter is closed

4.3 LCD touch panel

Functionality

The LCD touch panel has two main functions:

1. Showing the menus, adjustment information and if enabled a mirror of the OSD (On Screen Display).
2. Information regarding the status of the projector:
   - Projector status
   - Network address
   - Active source
   - Current firmware version
   - Operation Data
   - Active functions (Enabled Functions).

Toggle between the two main function by using the **Menu** button on the local keypad, or on the remote control unit.

The LCD touch panel will fade out 30 seconds after the last key operation.

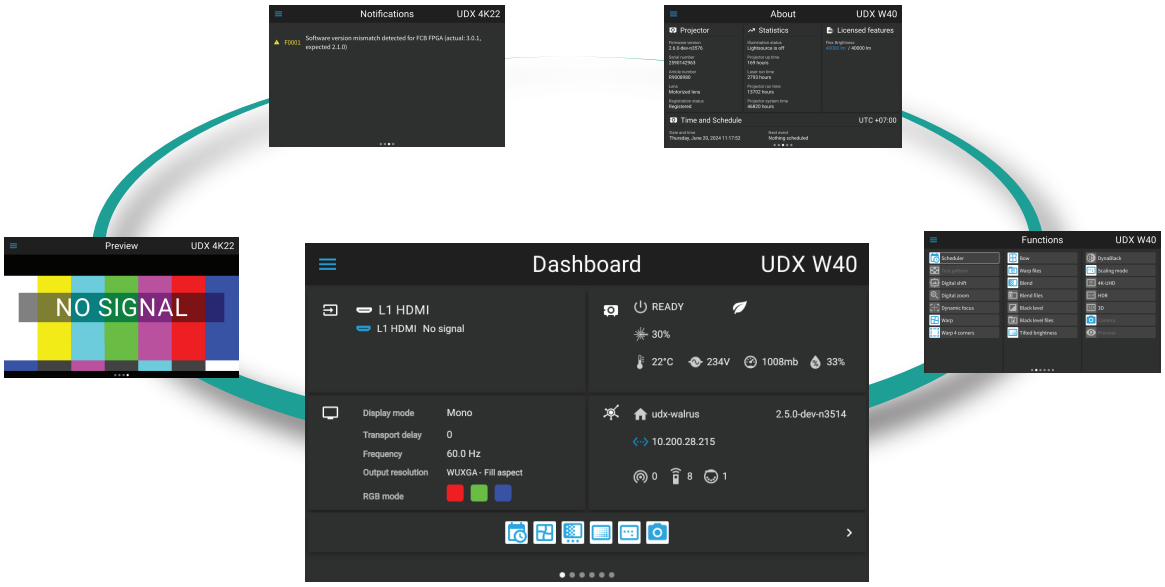


Image 4–2 Example of the Pulse OSD user interface

Refer to the ***Pulse OSD*** user guide for detailed guidance on all software features of the projector.

Navigation

Use the arrow keys on the local keypad or on the remote control unit to navigate through the menus on the LCD touch panel.

In addition to the remote control unit and the local keypad, it is also possible to navigate in the menus with the touch functionality in the LCD panel:

- Press the icons to select the functions.
- Select switches to toggle.
- Select and drag sliders to adjust slider value.

The LCD menus can occasionally be slightly different in layout compared with the OSD menu, due to a more optimal layout regarding to the touch functionality of the LCD.

Basic Remote Control Unit

5

About the basic remote

The I600 projector is standard delivered with a basic remote control unit (without batteries). While this remote control unit has a more limited amount of available features compared with the optional Pulse RCU, it will be able to help you out with basic controls.

For more information about the optional Pulse RCU see chapter “Pulse Remote Control Unit”, page 41. For ordering information see Barco website.

5.1 Basic remote functions

Functions

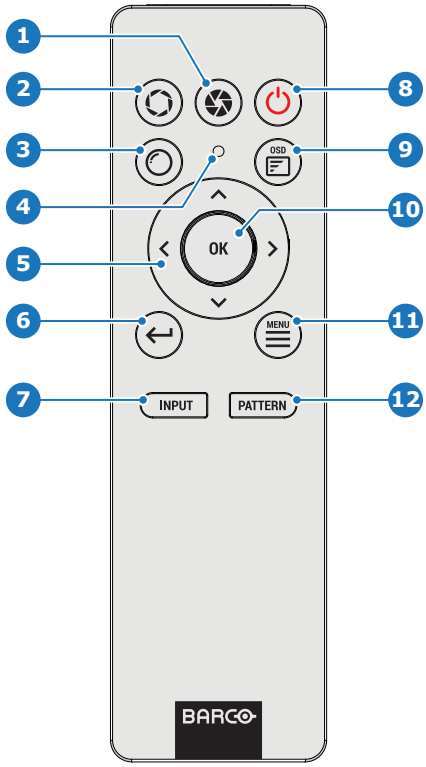


Image 5–1

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

The Power on / off button only shifts power between Ready and ON mode.

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.

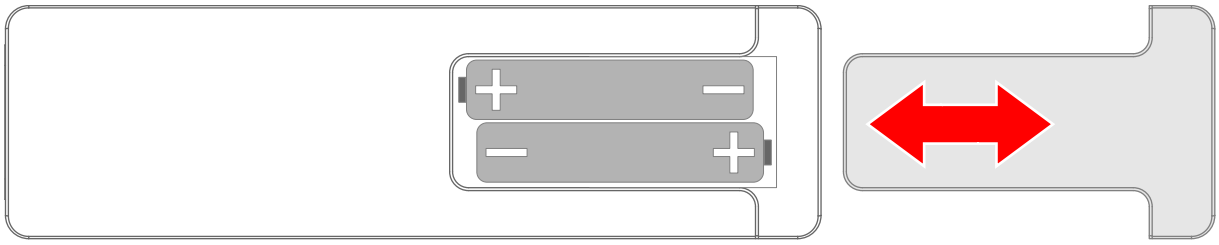


Image 5–2 Position of batteries in basic remote.

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.

Pulse Remote Control Unit

6

6.1 Pulse RCU functions

Functions

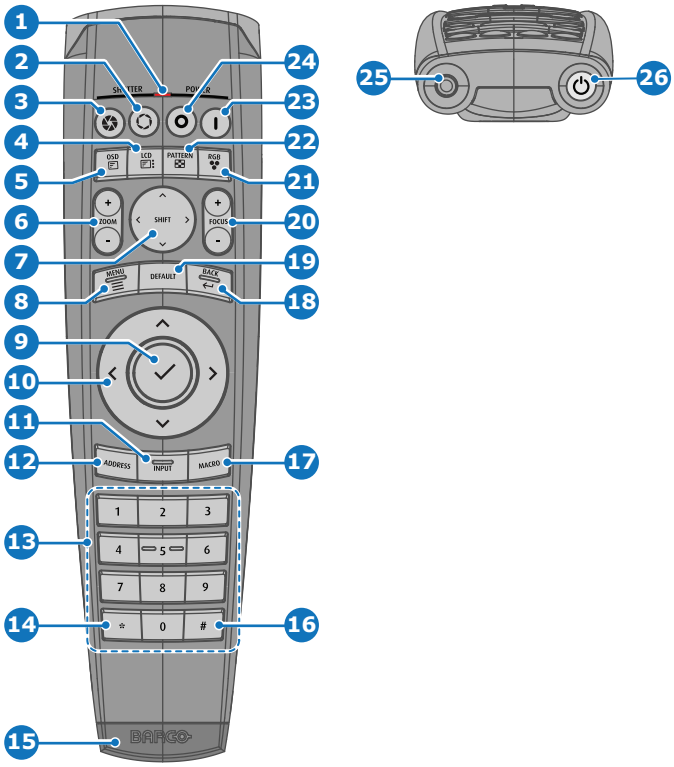


Image 6–1

1 Button pressed indicator
2 Shutter open
3 Shutter close
4 LCD/Touch panel on / off
5 Projector OSD on / off
6 Lens zoom
7 Lens shift
8 Menu open / close
9 Menu selection, OK button
10 Menu navigation
11 Input selection
12 Address button
13 Numeric buttons
14 Backspace (while entering values)
15 XLR connector
16 Decimal mark (while entering values)
17 Macro button (Not in use)
18 Menu back
19 Default value button
20 Lens focus
21 RGB filter
22 Test patterns
23 Power on
24 Power off
25 3.5 mm jack
26 RCU on / off

6.2 Pulse RCU battery installation

About the batteries for the remote control

Due to updated shipping regulations, batteries are no longer included in the packaging. It is up to the user to purchase the correct batteries.
Use two AA size (alkaline) batteries in the remote control.

Install the batteries before using the Pulse RCU.

CAUTION: Replace with the correct battery type. Use two AA size batteries. There is a risk of explosion if the battery is replaced with an incorrect type.

Required parts

AA size alkaline battery (two pieces)

How to install

1. Push the battery cover tab with the fingernail a little backwards (reference 1) and, at the same time, flip the cover outwards (reference 2).

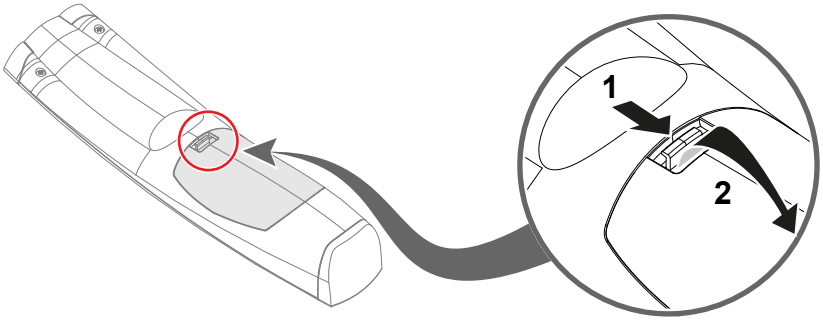


Image 6–2

2. Insert two AA size batteries into the battery compartment.

   making sure to match the polarities of the batteries to the + and - marks inside the battery compartment.

   Caution: Place the batteries as explained. There is a risk of explosion if the battery is incorrectly installed.

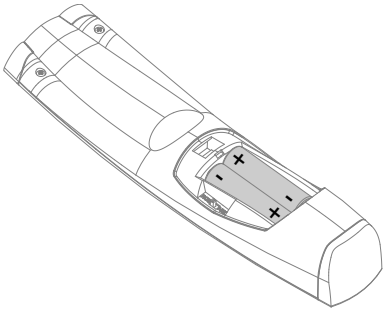


Image 6–3

3. Insert both lower tabs of the battery cover in the gaps at the bottom of the remote control (reference 3).
4. Press the top of the cover until in clicks in place (reference 4).

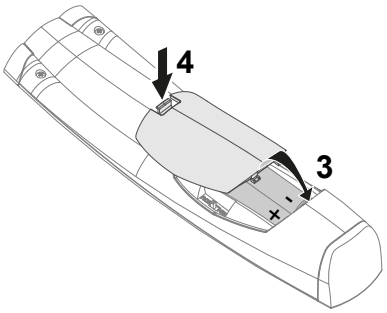


Image 6–4

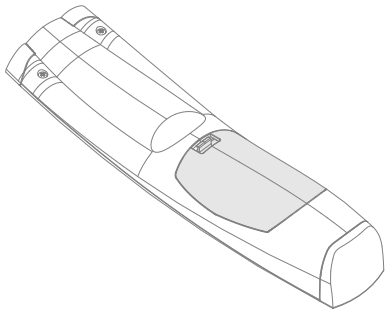


Image 6–5

When replacing batteries, the broadcast address of the RCU will be reset to its default value '0'.

6.3 Pulse RCU on/off button

Function of the remote control on/off button

The Pulse remote control unit has at the front side an on/off button (reference 1 Image 6–6). Switching off the remote control prevents that unwanted commands are send due to an accidental key press. Furthermore, switching the RCU off will extend the battery lifetime of the remote control.

To activate the remote control, press the on/off button until the button pressed indicator will turn off (3-5 seconds).

To deactivate the remote control, press the on/off button again.

Default after (re)placing batteries, is “ON”.

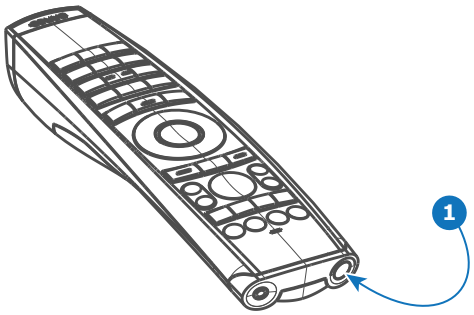


Image 6–6

6.4 Pulse RCU “button pressed indicator”

Functions button pressed indicator

- Rapidly flashes when commands are sent, this is the normal “button pressed” indication.
- 1 Short flash when remote control is switched ON by means of the on/off button.
- Continuously lit (up to 5 seconds) when address digits are expected after pressing the ADDR button.
- Slowly flashes (2 times a second) when the battery level is becoming low; typically when more than 85% of the useful life is past.

6.5 Pulse RCU “Projector OSD on/off” button

On-Screen Display (OSD) on/off

While the light source is on, you can toggle the projection of the On-screen display on and off by pressing the projector OSD on/off button.

Stealth mode on/off

Stealth mode is a function where the backlight of the LCD, the backlight of the keypad buttons and the indication LEDs on the communication and input panels can be disabled.

If “*Stealth mode*” has been enabled in the Pulse software, pressing the OSD on/off button for five seconds or more will cause Stealth mode to activate or deactivate.

For more info on how to configure stealth mode, see the Pulse OSD software user guide or the Pulse Prospector user guide.

6.6 Pulse RCU “RGB filter” button

Filtering the color of the projected image

By pressing the RGB filter button on the RCU you can place a color filter on the output of the projector. This feature can be useful during the installation and configuration of a multi-projector or multi-channel setup. By having one projector project a red image and another project a green image, it is easier to spot and adjust the overlap section.

By pressing this button multiple times, you will have different active filters, in the following cycle:

- Red + Green + Blue (default)
- Red only
- Green only

- Blue only
- Red + Green
- Green + Blue
- Red + Blue
- Red + Green + Blue
- etc

After powering up, the colors will always revert back to full RGB.

6.7 Displaying the projector address and IP address

About the improved way of displaying addresses

On Pulse 2.6 and older, the **Address** button can only be used to program the projector address into the remote.

From Pulse 2.7 onward, the **Address** button has been updated. When pressed, the projector will display the projector address, the host name and the available IP address(es).

How to display the projector address on Pulse 2.7 and later

1. Press the **Address** button on the Pulse RCU until the following image is displayed on the LCD and OSD of the projector.

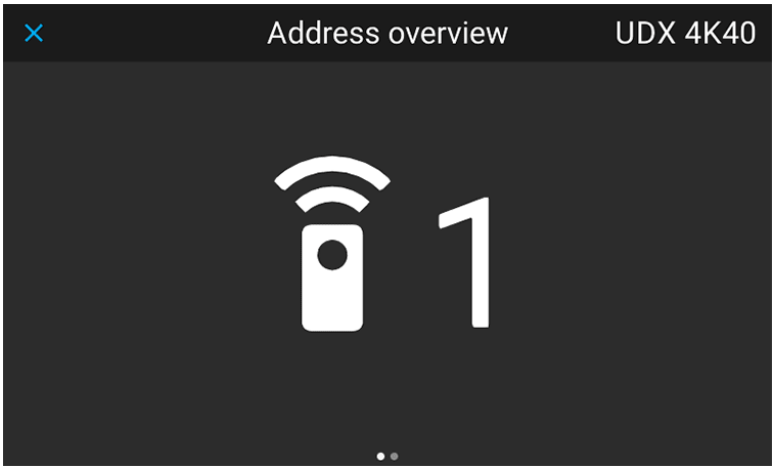


Image 6–7 Example of the default address of the projector

2. Press the right arrow key on the Pulse RCU or keypad to view the IP address(es) and host name of the projector.

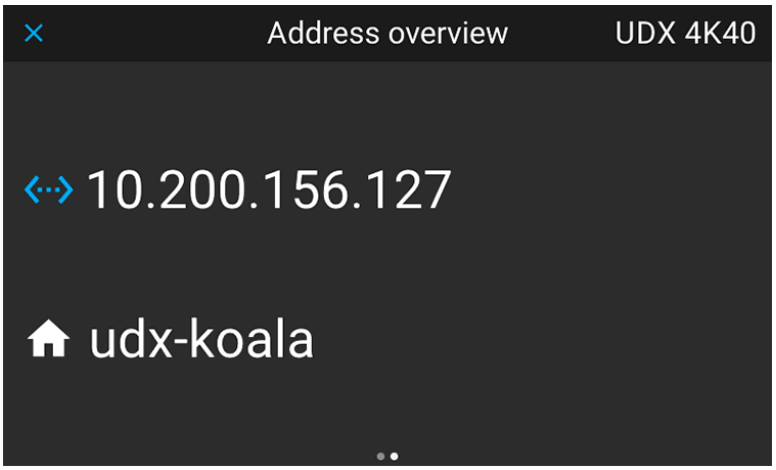


Image 6–8 Example of an IP address and host name

6.8 Changing the projector addresses

Controlling the projector in a multi-projector setup

As the Pulse RCU is programmed to work with any Pulse-powered projector, it should be understood that in a multi-projector setup, the Pulse RCU may control multiple (if not all) projectors at the same time. In order to control the projector there are two addresses that can be used:

- the individual **projector address**
- the group **broadcast address**

About the individual projector address

In a multi-projector setup, each projector should be addressed separately with a Pulse RCU. For this reason the individual projector address exists.

When the projector address is set, the projector can be controlled with an RCU programmed with the same address.

You can support up to 31 different addresses using this method. The default address is ‘1’.

About the group broadcast address

In a multi-projector setup, there are certain commands that have to be addressed to every projector in the setup (e.g. change power state, shutter open/close, etc). For this reason the group “broadcast address” exists.

The broadcast address can be either ‘0’ or ‘1’. The default address is '0'.

How to set

1. Do one of the following:
   a) In the Pulse OSD, select *Settings* > *Communication* > *Remote Control*.
   b) In Pulse Prospector, select *Setup* > *Communication* > *Remote Control*.
2. Set the desired *Broadcast address*.
3. Set the desired Projector address.
4. Click **Apply** and confirm.

For more information on these menus, refer to either the Pulse OSD or Pulse Prospector user guide.

6.9 Programming the projector address into the Pulse RCU

Projector address
Address installed in the projector to be individually controlled.

About the individual projector address

In a multi-projector setup, each projector should be addressed separately with a Pulse RCU. For this reason the individual projector address exists.

When the projector address is set, the projector can be controlled with an RCU programmed with the same address.

You can support up to 31 different addresses using this method. The default address is ‘1’.

How to program the projector address?

1. Read the projector address from the projector you want to address with this Pulse RCU.
2. Press the **Address** button until the *Button pressed indicator* lights up continuously (approximately 5 seconds).
3. Enter the address with the digit buttons within the time the indicator lights up (also approximately 5 seconds).

Tip: A few examples:
To enter address 3, press "3" digit button on the RCU to set the RCU's address to 3 and wait until the *button pressed indicator* is out. Alternatively, you can also press “0” and “3”. This way, the *button pressed indicator* goes out immediately.
To enter address 31, then press “3” and “1” on the digit button on the RCU and the *button pressed indicator* goes out immediately.

Placing new batteries in the remote control or plugging the remote to a projector via a cable will automatically reset the address back to its default value '0'.

6.10 Using the XLR connector of the RCU

Connecting a cable with the XLR connector will reset the broadcast address of the RCU to its default value '0'.

Revised RCU

Revised Remote Control Units produced from April 2023 onward will require the projector to run software 2.3.x (or newer) in order to properly use the XLR connector. If not yet updated to the most recent version, update the projector software. For more information, see “Software update”, page 68.

How to use the XLR connector

1. Pull the XLR cover backwards.

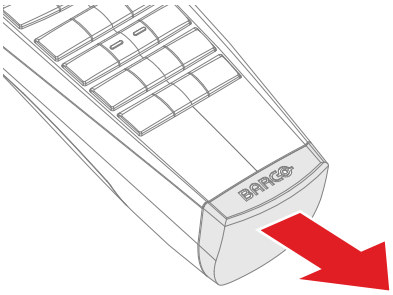


Image 6–9

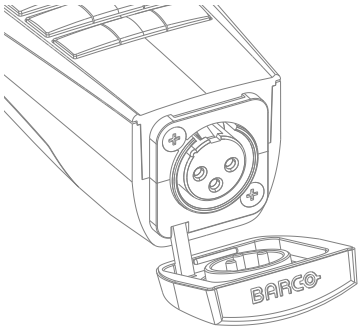


Image 6–10

2. Connect a cable with XLR plug into the XLR connector of the RCU.
3. Connect the other end of the cable with the XLR input of the projector.

6.11 Using the mini-jack connector of the RCU

Connecting a cable with the mini-jack connector will reset the broadcast address of the RCU to its default value '0'.

How to use the mini-jack connector

1. Connect a cable with the mini-jack connector (reference 2, Image 6–11) of the RCU.
2. Connect the other end of the cable with the mini-jack input of the projector.

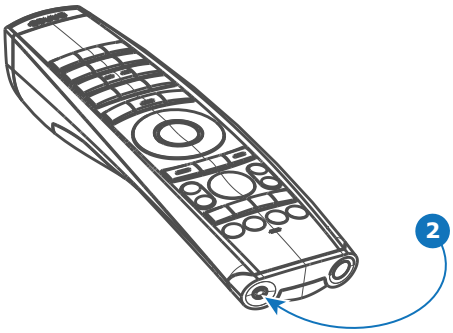


Image 6–11

Note: While the mini-jack cable is connected, the IR receivers of the projector are switched off.

6.12 Pulse RCU silicone protection sleeve (optional)

Introduction

Barco offers a silicone form fitting protection sleeve for the Pulse RCU. The silicone material keeps it comfortably, non-slip and soft to the touch. All buttons and openings remain accessible. The only thing that needs to be removed is the XLR cover.

Required tools

Scissors or knife cutter

How to install

1. Remove the XLR cover by pulling it backwards.

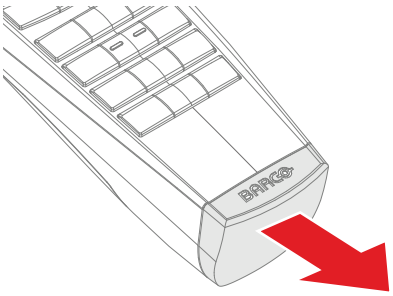


Image 6–12

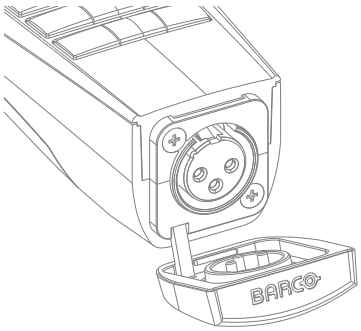


Image 6–13

2. Pull out or cut off the XLR cover. Use scissors or a knife cutter if necessary.
3. Place back side (XLR side) of the RCU into the sleeve and pull the other side of the sleeve over the front side of the RCU.

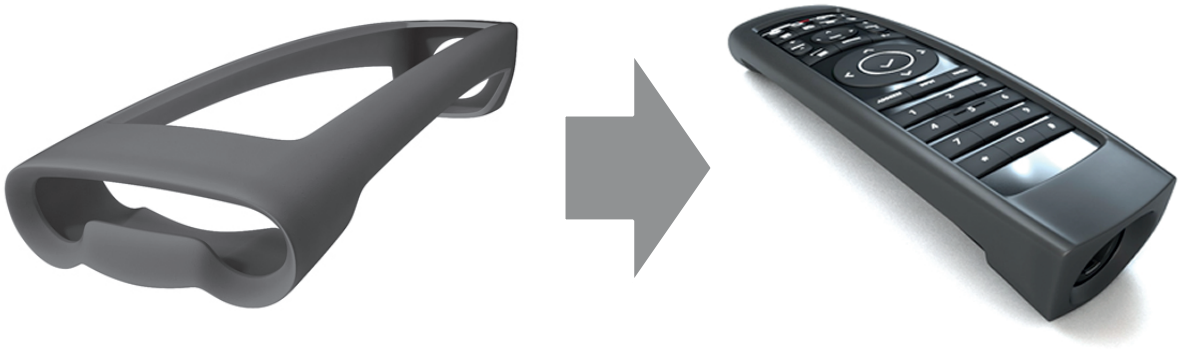


Image 6–14

7 Powering on / off

7.1 Power modes

Overview

The projector has 4 different power modes:

Mode	Description
ECO STANDBY	Light source is switched off and projector electronics are powered down.
STANDBY	Light source is switched off and Control & Communication module is active.
READY	Projector is booted up and the light source is switched off.
ON	Projector is booted up and the light source is on.

Energy consumption is significantly lowers in ECO STANDBY mode: only <0.5W if network is not plugged in and 2W with network.

In ECO STANDBY mode, remote power up (Wake-on-LAN) and local power up (button) are supported.

Wake-On-LAN (WOL)
The link speed of the projector network interface in ECO mode is reduced to 10Mbit/s. This is standard practice in the industry to not waste power. Hence, the network connected with the projector must support such a low link speed to enable the remote wake up of the projector. This implies that all peripherals (switchers, routers...) in the network path must support WOL and configured correctly to support WOL.

Wake on DMX activity
When the projector is in STANDBY mode, DMX commands using DMX over XLR are not processed. This means that is not possible to wake up the projector using specific “power on” DMX commands. For projectors where this is an issue, the XLR menu now has the command “Wake on DMX activity. When enabled, the projector will wake up if it detects any activity on the DMX input.
When using DMX over Ethernet (using ArtNet), DMX commands are processed, even when the projector is in STANDBY mode.

7.2 Power On the projector

How to power on the projector

1. Ensure that the mains input of the projector is connected with the power net.

   The projector starts up to **READY** mode as soon as the projector is connected with power net. The **Power on/off** button will blink until **Ready** mode is achieved. Once in **Ready** mode, the **Power on/off** button will be lit **WHITE**. The start up screen is displayed on the touch panel. Once the startup is completed, the status screen will be displayed.

Image 7–1

2. Press the **Power on/off** button on the projector, or the **Power On** button on the remote control.

   The projector will continue to **ON** mode. The **Power on/off** button will blink until the projector is ready for projection. Once the projector is fully started up, the **Power on/off** button will be lit **BLUE**.

Image 7–2

7.3 Power Off the projector

How to power off the projector

1. While the projector is in **ON** mode, press and hold the **Standby** button on the local keypad, or the **Power Off** button on the remote control, to shut down the light source of the projector.

   Note: If the **auto lights source off** feature is enabled, the projector will automatically transition to **READY** mode if no sync is detected on the chosen source input (default time-out 15 minutes). For more info, see the Pulse OSD or Pulse Prospector manual.

   The projector will switch from **ON** to **READY** mode first in order to run through a cool down phase.

2. While the projector is in **READY** mode, press and hold the **Standby** button on the local keypad, or the **Power Off** button on the remote control, to bring the projector from the **READY** mode in the **STANDBY** mode.

   Note: If the **auto standby** feature is enabled, the projector will automatically transition to **STANDBY** mode if no activity is happening on the projector (default time-out 15 minutes). For more info, see the Pulse OSD or Pulse Prospector manual.

3. While the projector is in **STANDBY** mode, press and hold the **Standby** button on the local keypad, or the **Power Off** button on the remote control, to bring the projector from the **STANDBY** mode in the **ECO STANDBY** mode.

   Note: If the **auto standby** feature is enabled, the projector will automatically go to **ECO STANDBY** mode after a time-out (default time–out 15 minutes). For more info, see the Pulse OSD or Pulse Prospector manual.

Some actions (like applying a grey test pattern) are done during the two minutes of the cool down phase. This is done in order to minimize the potential effect of burn-in and increase the projector lifetime.

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

Barco advises to keep the projector always powered and use the **ECO STANDBY** mode for low power consumption.

How to unplug the projector

1. Follow the previous power off procedure to switch off the projector.
2. Wait at least two minutes.

   Caution: It is very important to wait few minutes before unplugging the power cord. If the cool down phase is not adhered, projector lifetime could be degraded.

3. Remove the power cord from the AC outlet or unplug it from the projector.

   Note: Some power cords have a clip that must be pressed to release the cord from the projector.

7.4 Power mode transitions

Power transition diagram

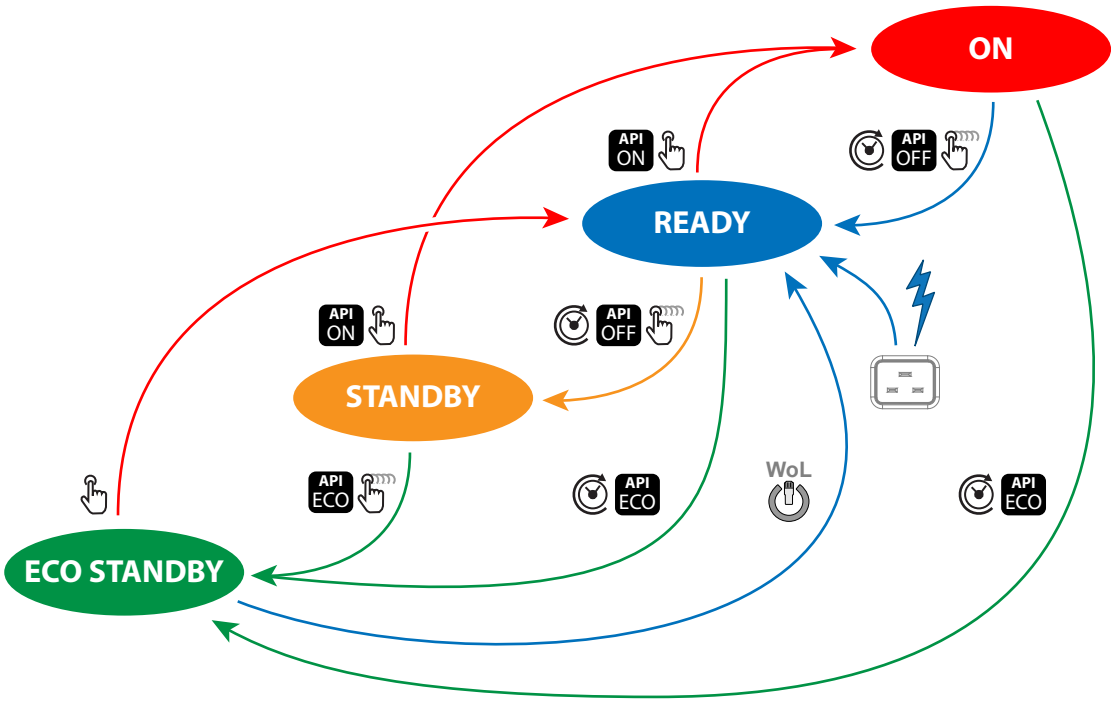


Image 7–3

Symbol	Description
	Short pressing the **Power on/off** button on the local keypad or on the remote control unit.
	Long pressing the **Power on/off** button on the local keypad or on the remote control unit.
	Wake-On-LAN (WOL). Only works if a network was connected with the LAN port of the projector while the projector went to **ECO STANDBY**.
API ON API OFF API ECO	API command to change the power state of the projector (Power ON, Power OFF, Go to ECO).See Pulse user guide for more info (E.g. PJLink).
	Auto light source off and **auto standby** features. Default disabled (factory settings). For configuration see power saving settings in the Pulse user guide.
	The projector starts default up in **READY** mode when it is powered.

Wake-On-LAN (WOL)

Wake-On-LAN (WOL), the standard ethernet network command, can be used to awakened or to turn on the projector by network message.

Used alone, the WOL command allows to switch in **READY** mode. A JSON command must be performed in addition to make the projector turn in to **ON** mode:

1. Send WOL.
2. Wait for connection to façade/prospector (the unit does provide feedback when it's ready).
3. Wait for ready state.
4. Sleep 5 seconds.
5. Send JSON "power on" command (to switch in **ON** mode).

Wake-On-LAN (WOL)
The link speed of the projector network interface in ECO mode is reduced to 10Mbit/s. This is standard practice in the industry to not waste power. Hence, the network connected with the projector must support such a low link speed to enable the remote wake up of the projector. This implies that all peripherals (switchers, routers...) in the network path must support WOL and configured correctly to support WOL.

Inputs & Communication

8

8.1 Control & Communication module

Front panel Control & Communication module

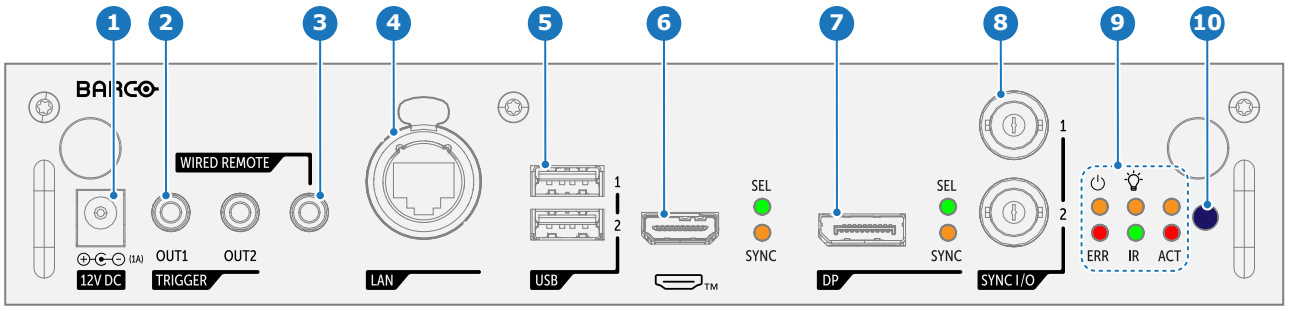


Image 8–1

1 12V DC
2 TRIGGER
3 WIRED REMOTE
4 LAN
5 USB
6 HDMI™
7 DP
8 SYNC I/O
9 Projector status LEDs
10 IR receiver

Functionality

Nr	Name	Description
1	**12V DC**	12 V DC output, maximum 1A available when projector is not in standby.
2	**TRIGGER**	Two 3.5 mm mini jack connectors (OUT1 & OUT2) for controlling peripherals like motorized screens, curtains etc. Give 12V DC, 0.5A (6W) output when projector is switched on. **Note:** If the TRIGGER outputs are loaded too heavy, there is a risk that the projector will go in reset mode, and restart. This causes no damage to the projector, but is an undesirable response. This will also happen if the startup current for the external equipment is too high, even though the nominal power consumption is less than 0,5A
3	**WIRED REMOTE**	Connect the RCU via a 3.5 mm mini jack with the wired remote input to control the projector without interference.
4	**LAN**	Standard RJ45 connector for external projector control over IP and Art-Net. **Note:** Ethernet should only be connected to either the 10/100 base-T port of the Control & Communication module, or the HDBaseT input of the HDBaseT input module, or the HDBaseT input of the Quad Combo Input Mk II. Using HDBaseT inputs of different modules simultaneously will lead to undefined behavior.
5	**USB**	2 x USB 2.0 type A. These USB ports will simplify the service procedures for firmware updates or for downloading the log files without a network connection. If the only file on the USB device is the firmware file (a “*.fw” file), the projector will automatically start one of the following processes: • **cornet<version nr>.fw**: The projector will upgrade or downgrade, depending on the version number. • **LogExtractor.fw**: The log files will be downloaded. **Note:** Make sure that any used USB-stick is FAT32 compatible and contains no other files or folders.
6	**HDMI™**	Standard HDMI 2.1 input port for source connection to the projector.
7	**DP**	Standard DisplayPort™ (1.4), for source connection to the projector.
8	**SYNC I/O**	BNC sync port in/out for projector control. This is mainly used in multiple projector installations with requirement of synchronization between the units.
9	Status LEDs	Projector status LEDs (see chapter “Projector status”, page 25).
10	IR	Infra Red receiver.

The USB ports can also be used to insert the Pulse Wi-Fi module (USB-dongle). However, wireless connectivity, such as Wi-Fi, is not be supported in certain countries due to local regulatory restrictions. Contact your Barco representative for more information.

LED behavior

- The SEL LED lights up GREEN: input is selected.
- The SEL LED blinks GREEN: input/output is selected and configured as output.
- The SYNC LED lights up ORANGE: valid input sync is detected.
- The SYNC LED blinks ORANGE: Sync/signal is present, but not conform with input port standard.

Non-conformity issues can be caused by older or low quality cables unable to handle the requested resolution, or connected signal converters manipulating the signal out of the supported video standards.

8.2 Pulse HDBaseT input module

Front panel Pulse HDBaseT input

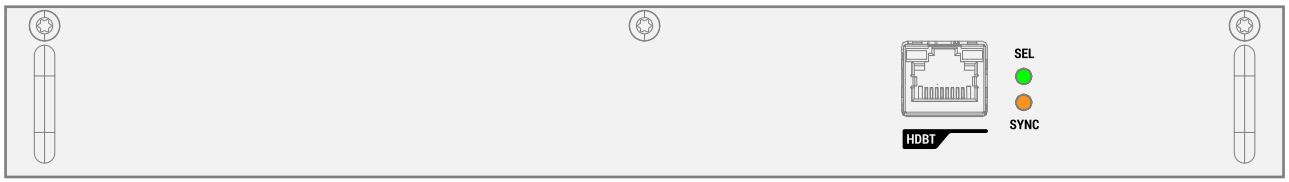


Image 8–2

Ethernet should only be connected to either the 10/100 base-T port of the Control & Communication module, or the HDBaseT input of the HDBaseT input module, or the HDBaseT input of the Quad Combo Input Mk II. Using HDBaseT inputs of different modules simultaneously will lead to undefined behavior.

8.3 Pulse Quad Combo input Mk III

Front panel Quad Combo Input Mk III

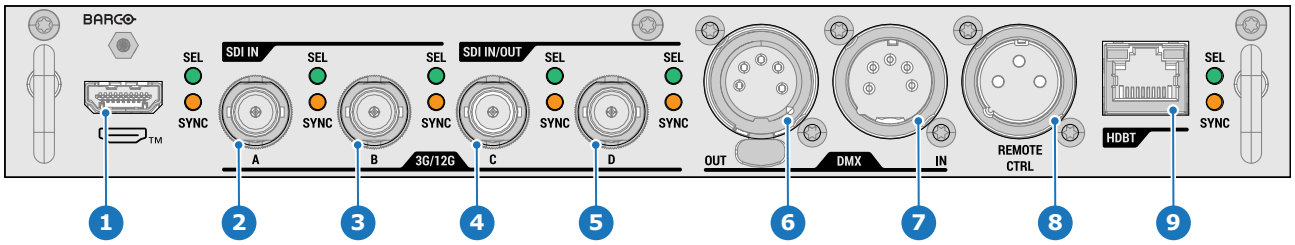


Image 8–3

1 HDMI™ input[4]
2 Quad SDI channel A: 3G/12G input
3 Quad SDI channel B: 3G/12G input
4 Quad SDI channel C: 3G/12G input/output
5 Quad SDI channel D: 3G/12G input/output
6 DMX interface output
7 DMX interface intput
8 XLR for wired projector control
9 HDBaseT input

HDMI™

Supports HDMI 2.1 features (FRL up to 4 lanes 12G)

4. 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.

SDI ports – How does it work?

- The **SDI port A, B, C** and **D** supports **3G/12G** input signals.
- The **SDI port C** functions as a **loop-through output** for any signal placed on **port A**.
- The **SDI port D** functions as a **loop-through output** for any signal placed on **port B**.

When connecting multiple projectors with the same signal, you can connect the signal as follows:

- Connect the source signal to Input A or B of the first projector.
- If the source signal is connected to **input A**, connect **input/output C** to the Input of the following projector.
- If the source signal is connected to **input B**, connect **input/output D** to the Input of the following projector.
- Continue in the same fashion until all projectors are connected.

DMX interface

DMX is used as communication bus between different devices in the light technic. Each device has an input and an output, so that the bus can be looped between the different devices. According the standard a five wire cable with XLR connector is used.

You can use the DMX input port to connect a DMX device (DMX console) to the projector. This way you can control the projector from that DMX device (console). The DMX output port can be connected with the next device in the loop.

DMX

Pin	Description
1	Earth
2	Cold
3	Hot
4	Return - (or not used)
5	Return + (or not used)

Due to technical reasons, the DMX interface can only be used if the Pulse Quad Combo input Mk III is mounted in input slot L1.

DMX
DMX-512 Lighting protocol over RS-485 interface. Carries information of 512 channels from a lighting controller to lighting devices. Standardized by USITT.

HDBaseT input

Supports HDBaset 3.0 (up to 4k60 RGB 444).

The HDBaseT port does not supports network connectivity.

LED behavior

- The SEL LED lights up GREEN: input is selected.
- The SEL LED blinks GREEN: input/output is selected and configured as output.
- The SYNC LED lights up ORANGE: valid input sync is detected.
- The SYNC LED blinks ORANGE: Sync/signal is present, but not conform with input port standard.

Non-conformity issues can be caused by older or low quality cables unable to handle the requested resolution, or connected signal converters manipulating the signal out of the supported video standards.

For specifications about the supported inputs for SDI, HDMI, HDBaseT and DisplayPort 1.2 see chapter “Specifications”, page 71.

8.4 Pulse Quad DP 1.2 input

Front panel Quad DP 1.2 input

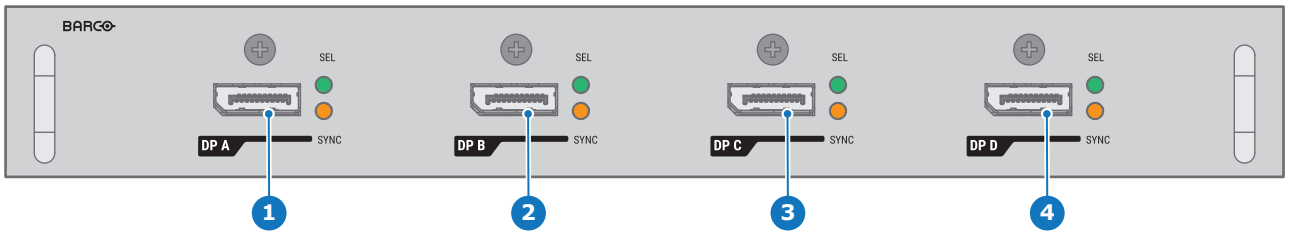


Image 8–4

1 Quad DisplayPort channel A input
2 Quad DisplayPort channel B input
3 Quad DisplayPort channel C input
4 Quad DisplayPort channel D input

LED behavior

- The SYNC LED lights up ORANGE when valid input sync is detected.
- The SEL LED lights up GREEN when the input is selected.
- Blinking YELLOW: Sync/signal is present, but not conform with input port standard.

Non-conformity issues can be caused by older or low quality cables unable to handle the requested resolution, or connected signal converters manipulating the signal out of the supported video standards.

For specifications about the supported inputs for DisplayPort 1.2 see chapter “Specifications”, page 71.

8.5 Pulse SFP input

The Barco SFP Input Board has been designed and tested to work alongside the Barco SFP Output Board.
However, it is possible that the SFP Input board can also work with other third-party devices that support 12G over fiber. Due to the many third-party options available on the market, the input board could not be tested for every option available.

Overview SFP input

The SFP Input board is used to connect 12G SDI over fiber. The SFP input is delivered without any connector. It is up to the customer to buy the necessary connectors, transceivers and cables. These parts can be mounted on the indicated places on the front panel of the board.

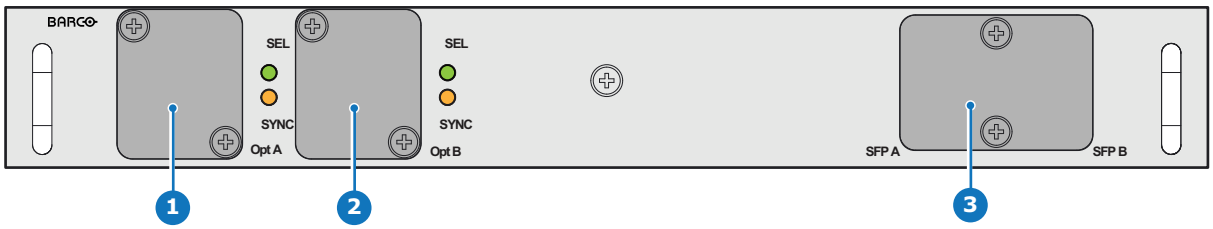


Image 8–5

1 Neutrik Duo optical connector or Neutrik Quad optical connector
2 Neutrik Duo optical connector or Neutrik Quad optical connector
3 2x12G SDI/10GE transceiver

For specifications about the supported inputs for SFP see chapter “Specifications”, page 71.

LED behavior

- The SYNC LED lights up ORANGE when valid input sync is detected.
- The SEL LED lights up GREEN when the input is selected.
- Blinking YELLOW: Sync/signal is present, but not conform with input port standard.

Non-conformity issues can be caused by older or low quality cables unable to handle the requested resolution, or connected signal converters manipulating the signal out of the supported video standards.

Use cases

The SFP can be configured as follows:

1. SFP+ transceiver + Fiber connection (integrated or separated)
2. Neutrik OpticalCon Duo + SFP+ transceiver + internal fiber
3. Neutrik OpticalCon Quad + SFP+ transceiver + internal fiber
4. Loop-through mode

See projector installation manual for detailed instructions on how to install/configure the SFP input.

WARNING: Only by Barco trained and qualified technicians are allowed to install the SFP input.

Optical Tranceiver to comply with Laser Class 1, IEC60825–1: 2014

9 Dust filter

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.

9.1 Replacing the dust filter

Required tools

Torx screwdriver T10

How to replace the dust filter

1. Loosen the eight screws (reference 2 Image 9–1) on the front side of the dust filter assembly (reference 1).
2. Remove the dirty dust filter assembly (reference 1) from the front cover of the projector.

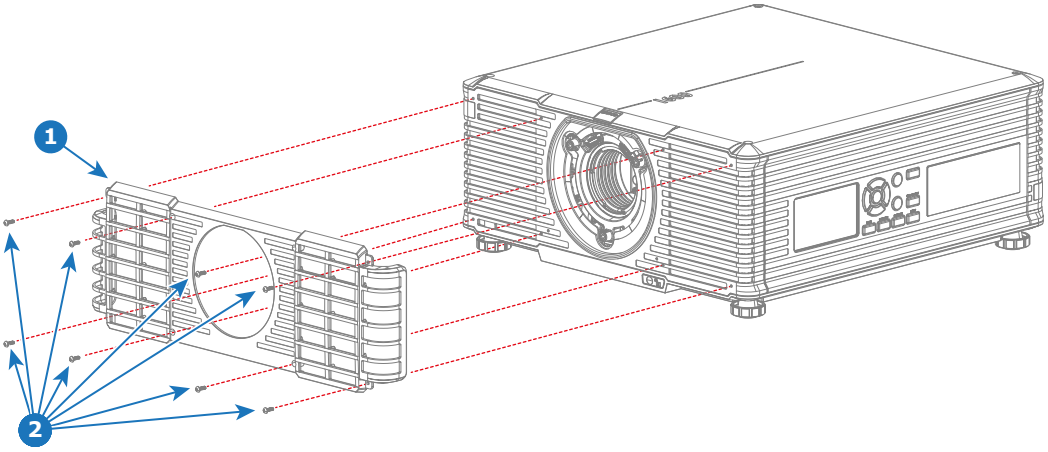


Image 9–1

3. Position the new or cleaned dust filter assembly (foam + holder) on the front cover of the projector.

   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.

4. Fasten the dust filter assembly with 8 screws (reference 2 Image 9–1). Use a Torx screwdriver T10.

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.

For cleaning instructions see “Vacuum cleaning of the dust filter foam”, page 64, or “Washing and drying the dust filter foam”, page 65.

9.2 Vacuum cleaning of the dust filter foam

When vacuum the dust filter foam

If the dust filter foam is contaminated with dust then cleaning the foam with a vacuum cleaner should be sufficient. In case the dust filter foam feels greasy then it must be washed. See cleaning procedure “Washing and drying the dust filter foam”, page 65.

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

Prerequisites

This procedure assumes that the dust filter foam is removed from the dust filter holder. See procedure “Replacing the dust filter”, page 64.

Required tools

Vacuum cleaner with soft brush suction nuzzle.

How to vacuum-clean the dust filter foam

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

Tip: Lightly tap the filter foam on its dusty side to expel heavy dust contamination.

Tip: Compressed air is also permitted to clean the filter foam but take care not to damage the foam.

Caution: Replace a damaged dust filter foam immediately.

9.3 Washing and drying the dust filter foam

About filter foam washing and drying

For environments where popcorn grease and such can contaminate the filter foam, Barco advises the client to purchase one extra set of filter foam to cover drying time, as well as taking following extra precautions and instructions pertaining to filter foam cleaning and drying.

Cleansing agent

To clean sticky, greasy dust filter foam we suggest usage of **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 product itself is relatively safe, sodium carbonate is used in toothpastes and as a food additive (E500). Potential Hazards are described in the section “Safety”, page 9.

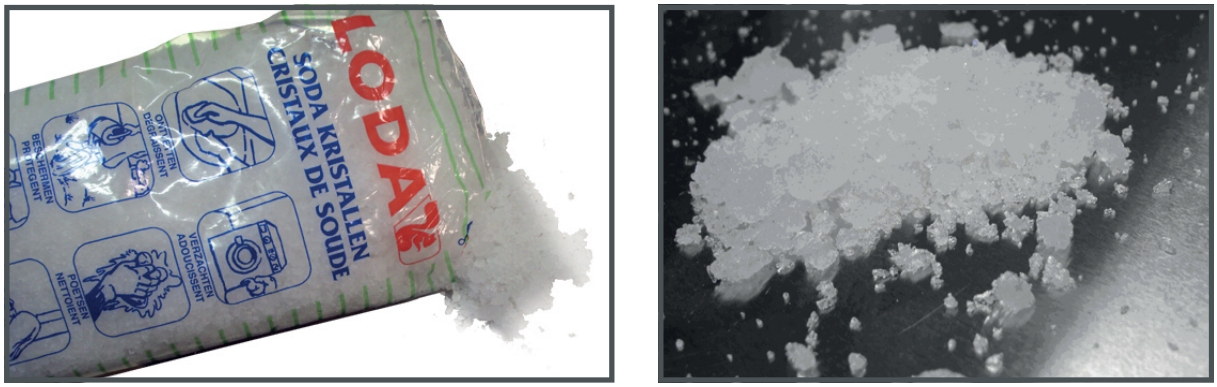


Image 9–2 Sodium carbonate crystals.

This cleaning procedure assumes that the filters are already removed from their slots.

Take into account that the time needed to dry the dust filters may be 24 hours or more. For that, it's recommended to have a second set of dust filters which can be used while cleaning the first set.

Prerequisites

This procedure assumes that the dust filter foam is removed from the dust filter holder. See procedure “Replacing the dust filter”, page 64.

Required tools

- Bucket with hot water

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

How to wash and dry the dust filter foam

1. Make a solution with a ratio of 30 gram (a handful) sodium carbonate to 1 liter **hot water**.
2. Soak the dust filter foam in the solution for **30 to 60 minutes**. The grease should be dissolved after 1 hour.
3. If the dust filter is still clogged repeat this procedure from step 1.
4. Rinse the dust filters with clean water to flush all grease residue away.
5. Shake out all excess liquid by repeatedly swinging the filter to-and-fro in a centrifugal action.
6. Then allow the filters to **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.

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.

Projector maintenance 10

10.1 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, check the filter on the front air inlet of the projector.	Clean a dirty dust filter. Replace a damaged filter immediately. See procedure “Replacing the dust filter”, page 64.

10.2 Software update

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.

Prerequisites

First download the latest projector software package from the Barco's website, using the following link: *https://www.barco.com/support*.

Required tools

USB flash drive

How to update the software if the projector isn't connected to the network

1. Take a clean USB flash drive and create the following folder structure:

   `/Barco/Firmware`

   Note: Make sure the flash drive is formatted in FAT32. If the folder structure does not exist, the Software update menu tile will remain disabled.

2. Place the correct projector update file (format .fw) in the Firmware folder.
3. Ensure the projector is in Ready mode.
4. Log in with the credentials of Power user or higher.
5. Plug the flash drive in the USB port on the Communication Panel.

   A window will be prompted with the available software update packages.

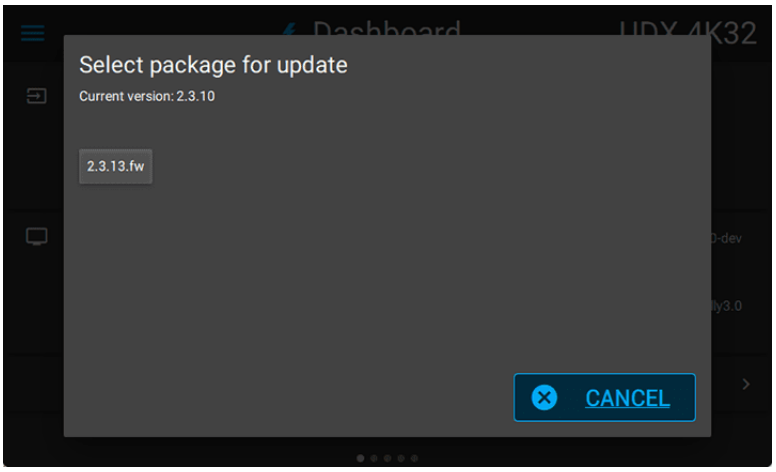


Image 10–1 Example of software packages available on the flash drive.

6. Select the desired package and confirm.

   A software update dialog will be prompted, requesting confirmation.

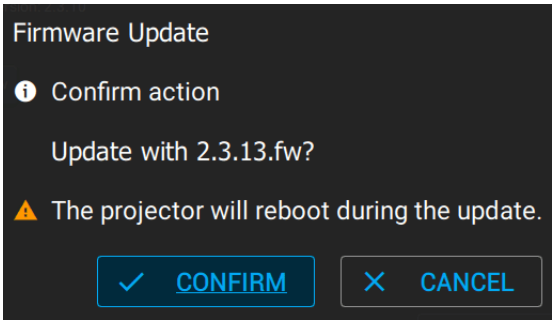


Image 10–2 Example of a Software update dialog prompt

7. Select *Confirm* to start the software update process.

   Note: Once initiated, the update procedure can take up to 20 minutes to complete. During this process the projector will reboot at least once.
   The LCD display will show the current status of the update during the update process.

8. Once the LCD display shows that the update process has been completed, it is safe to remove the USB flash drive.

CAUTION: While it is technically possible to “downgrade” the software to an older version using this method, it is **NOT** recommended and should be avoided as much as possible. Certain features will no longer be supported, projectors can display unwanted behavior during the downgrade and in some rare cases, this may even bring damage to the device. Always contact Barco if you want to make sure a downgrade will not hurt your device.

10.3 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.

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[5]) .
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.

10.4 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.

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

Specifications

A

A.1 I600-4K8 specifications

Projector type	4K UHD 1-chip DLP digital projector
Technology	0.8" DMD™
IR for NVG	No
Resolution	3840 x 2400 (4K UHD) 1920 x 1200 (native)
Brightness	8000 ISO lumen
Brightness uniformity	>90%
Contrast ratio	Full field 1.600:1 Barco DynaBlack® 20.000:1
Light source	Blue laser phosphor with inorganic phosphor wheel
Light source lifetime	20.000hrs
Aspect ratio	16:10 Native
Color space	REC 709
Orientation	360° rotation no restrictions
Sealed DLP™ core	Yes
24/7 operation	Yes
Processing	Pulse electronics
Color correction	P7 RealColor™
CLO (constant light output)	Yes
Keystone correction	Yes
Image processing	Embedded warp & blend
3D	Active stereoscopic 3D / Passive stereo compatible
Picture-by-picture	Two sources simultaneously *
Lens type	ILD
Optical lens shift	Vertical up to 110% depending on lens Horizontal up to 30% depending on lens
Throw Ratio	From 0.37 to 7.4
Lens range	ILD lenses - 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™2.1 (HDCP2.2) / DP1.4 / RJ45 Ethernet / USB(5v) / 12V out / BNC 3D sync in-out
Optional Inputs	Quad DP1.2 Fiber SFP HDBaseT(Lite)/ HDMI™/ Quad-3G/ 12G/ DMX/ remote CTRL HDBaseT
Input resolutions	Including and up to:

	WUXGA: 1920x1200@240Hz 4K UHD: 3840x2400@120Hz
Input color depth	up to 36 bpp
Software tools	Projector Toolset + Android app + iOS app + IMS
Control	IR RJ45
Network connection	10/100/1000 Mbit, Wifi** (through optional dongle)
User interface	LCD touch local keypath remote control wired remote control
Web browser	Yes
Power requirements	100-240V 14A 50/60Hz
Power consumption	640W Typical
Standby power	< 0.5W
Dissipation BTU	2150 BTU/h
Noise level (typical at 25°C/ 77°F)	40dB(A)
Operating temperature	5°-40°C / 41°-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	without lens: 21.5 kg / 47.4 lbs
Standard accessories	Power cord, wireless remote control
Housing	Plastic cover
Certifications	Compliant with UL: UL 62368-1, EN IEC 62368-1, and GB 4943.1; Complies with FCC rules & regulations: Part 15 Class A and CE EN55022 Class A, GB/T 9254.1 A级 and GB 17625.1; RoHS;
Warranty	Limited 3 years on parts and labor Extendable up to 5 years Service: single swap of projector
Blend	horizontal and vertical edge blending
DMX 512	Optional
***Note**	* Supported when using of the optional 4x1.2 DP input board ** Wifi and GSM options are not available in all countries. Check with your Barco representative for more info.

A.2 I600-4K10 specifications

Projector type	4K UHD 1-chip DLP digital projector
Technology	0.8" DMD™
IR for NVG	No
Resolution	3840 x 2400 (4K UHD) 1920 x 1200 (native)
Brightness	10000 ISO lumen
Brightness uniformity	>90%
Contrast ratio	Full field 1.600:1 Barco DynaBlack® 20.000:1
Light source	Blue laser phosphor with inorganic phosphor wheel
Light source lifetime	20.000hrs
Aspect ratio	16:10 Native
Color space	REC 709
Orientation	360° rotation no restrictions
Sealed DLP™ core	Yes
24/7 operation	Yes
Processing	Pulse electronics
Color correction	P7 RealColor™
CLO (constant light output)	Yes
Keystone correction	Yes
Image processing	Embedded warp & blend
3D	Active stereoscopic 3D / Passive stereo compatible
Picture-by-picture	Two sources simultaneously *
Lens type	ILD
Optical lens shift	Vertical up to 110% depending on lens Horizontal up to 30% depending on lens
Throw Ratio	From 0.37 to 7.4
Lens range	ILD lenses - 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™2.1 (HDCP2.2) / DP1.4 / RJ45 Ethernet / USB(5v) / 12V out / BNC 3D sync in-out
Optional Inputs	Quad DP1.2 Fiber SFP HDBaseT(Lite)/ HDMI™/ Quad-3G/ 12G/ DMX/ remote CTRL HDBaseT
Input resolutions	Including and up to:

	WUXGA: 1920x1200@240Hz 4K UHD: 3840x2400@120Hz
Input color depth	up to 36 bpp
Software tools	Projector Toolset + Android app + iOS app + IMS
Control	IR RJ45
Network connection	10/100/1000 Mbit, Wifi** (through optional dongle)
User interface	LCD touch local keypath remote control wired remote control
Web browser	Yes
Power requirements	100-240V 14A 50/60Hz
Power consumption	860W Typical
Standby power	< 0.5W
Dissipation BTU	2900 BTU/h
Noise level (typical at 25°C/ 77°F)	40dB(A)
Operating temperature	5°-40°C / 41°-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	without lens: 23.6 kg / 52.0 lbs
Standard accessories	Power cord, wireless remote control
Housing	Plastic cover
Certifications	Compliant with UL: UL 62368-1, EN IEC 62368-1, and GB 4943.1; Complies with FCC rules & regulations: Part 15 Class A and CE EN55022 Class A, GB/T 9254.1 A级 and GB 17625.1; RoHS;
Warranty	Limited 3 years on parts and labor Extendable up to 5 years Service: single swap of projector
Blend	horizontal and vertical edge blending
DMX 512	Optional
***Note**	* Supported when using of the optional 4x1.2 DP input board ** Wifi and GSM options are not available in all countries. Check with your Barco representative for more info.

A.3 I600-4K15 specifications

Projector type	4K UHD 1-chip DLP digital projector
Technology	0.8" DMD™
IR for NVG	No
Resolution	3840 x 2400 (4K UHD) 1920 x 1200 (native)
Brightness	14000 ISO lumen
Brightness uniformity	>90%
Contrast ratio	Full field 1.600:1 Barco DynaBlack® 20.000:1
Light source	Blue laser phosphor with inorganic phosphor wheel
Light source lifetime	20.000hrs
Aspect ratio	16:10 Native
Color space	REC 709
Orientation	360° rotation no restrictions
Sealed DLP™ core	Yes
24/7 operation	Yes
Processing	Pulse electronics
Color correction	P7 RealColor™
CLO (constant light output)	Yes
Keystone correction	Yes
Image processing	Embedded warp & blend
3D	Active stereoscopic 3D / Passive stereo compatible
Picture-by-picture	Two sources simultaneously *
Lens type	ILD
Optical lens shift	Vertical up to 110% depending on lens Horizontal up to 30% depending on lens
Throw Ratio	From 0.37 to 7.4
Lens range	ILD lenses - 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™2.1 (HDCP2.2) / DP1.4 / RJ45 Ethernet / USB(5v) / 12V out / BNC 3D sync in-out
Optional Inputs	Quad DP1.2 Fiber SFP HDBaseT(Lite)/ HDMI™/ Quad-3G/ 12G/ DMX/ remote CTRL HDBaseT
Input resolutions	Including and up to:

	WUXGA: 1920x1200@240Hz 4K UHD: 3840x2400@120Hz
Input color depth	up to 36 bpp
Software tools	Projector Toolset + Android app + iOS app + IMS
Control	IR RJ45
Network connection	10/100/1000 Mbit, Wifi** (through optional dongle)
User interface	LCD touch local keypath remote control wired remote control
Web browser	Yes
Power requirements	100-240V 14A 50/60Hz
Power consumption	1200W Typical
Standby power	< 0.5W
Dissipation BTU	4095 BTU/h
Noise Level	40dB(A)
Operating temperature	5°-40°C / 41°-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	without lens: 23.7 kg / 52.3 lbs
Standard accessories	Power cord, wireless remote control
Housing	Plastic cover
Certifications	Compliant with UL: UL 62368-1, EN IEC 62368-1, and GB 4943.1; Complies with FCC rules & regulations: Part 15 Class A and CE EN55022 Class A, GB/T 9254.1 A级 and GB 17625.1; RoHS;
Warranty	Limited 3 years on parts and labor Extendable up to 5 years Service: single swap of projector
Blend	horizontal and vertical edge blending
DMX 512	Optional
***Note**	* Supported when using of the optional 4x1.2 DP input board ** Wifi and GSM options are not available in all countries. Check with your Barco representative for more info.

A.4 Specifications SDI inputs

HD-SDI follows the SMPTE 292M standard.
3G SDI follows the SMPTE 425M standard Level A.
12G-SDI follows the SMPTE ST-2082-1 and ST-2082-10 standards.

Availability

The SDI inputs are available on the following location(s):

- Pulse Quad Combo input Mk III

SDI specifications

Specification	Value		
Color space	YCbCr 4:2:2		
Color depth	10 bpc		
Chroma sampling	4:2:2		
Audio	not supported		
3D	not supported		
Interlaced support	• Level A: supported • Level B: not supported		
Video timings progressive	**Type**	**Port type**	**Format**
	HD-SDI	Single link Quad link	• 1920 x 1080 @24 Hz • 1920 x 1080 @25 Hz • 1920 x 1080 @30 Hz • 1280 x 720 @50 Hz • 1280 x 720 @60 Hz
	3G-SDI Level A	Single link Quad link	• 1920 x 1080 @50 Hz and @60 Hz • 2048 x 1080 @50 Hz and @60 Hz
	3G-SDI “Barco Link”	Single link Quad link	1920 x 1200 @50 Hz, @59.94 Hz and @60 Hz
	12G-SDI	Single link	3840 x 2160 @50 Hz and @60 Hz 4096 x 2160 @50 Hz and @60 Hz
	12G-SDI “BarcoLink 4k”	Single link	3840 x 2400 @50 Hz, @59.94 Hz and @60 Hz.

A.5 Specifications HDMI 2.1 inputs

Availability

The HDMI inputs are available on the following location(s):

- Control & Communication module
- Pulse Quad Combo input Mk III

HDMI specifications

The HDMI inputs support the following HDMI 2.1 features:

Specification	Value
Pixel rate	25 – 1188 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	• Field sequential 3D (Active 3D) - Frame-packed - Top Bottom progressive - Side-by-side progressive • Passive 3D **not** supported.
Audio	Not supported
Video timings progressive	• 640 x 480 @60 Hz • 720 x 480 @60 Hz • 720 x 576 @50 Hz • 1280 x 720 @50 Hz and @60 Hz • 1920 x 1080 up to and including @60 Hz • 3840 x 2160 up to and including @120 Hz • 4096 x 2160 up to and including @120 Hz[6]
Video timings interlaced	• 1920 x 1080 @50 Hz • 1920 x 1080 @60 Hz

A.6 Specifications HDBaseT input

Availability

The HDBaseT inputs are available on the following location(s):

- Pulse Quad Combo input Mk III
- Pulse HDBaseT input

HDBaseT specifications

Specification	Value
Pixel rate	25 – 594 MHz pixel clock
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

6. 4096x2160 is not supported witch color space YCbCr 4:2:0

Specification	Value
HDCP support	• HDCP 1.x • HDCP 2.2
Network support	Not supported on the Quad Combo input MKIII Supported on the Pulse HDBaseT input module
3D support	Not supported
Not supported	• Audio • Power over HDBaseT
Video timings	• 4096 x 2160 up to and including @60 Hz • 2048 x 1080 up to and including @120 Hz • 1920 x 1080 up to and including @120 Hz

CAUTION: The HDBaseT inputs can bridge a distance of 100 m but are sensitive to radiated electromagnetic interference: radiated electromagnetic interference (e.g. from GSM or switching inductive or capacitive loads) within the limits of electromagnetic compatibility requirements of 3 V/m can cause random flashes or temporary loss of the projected image.
As such, shielded CAT-6a cables (or higher) with metal RJ-45 connectors are recommended; choose cable length no longer than required and route HDBT cable optimally screened from possible sources of electromagnetic emission.

A.7 Specifications DisplayPort 1.4 inputs

Availability

The Displayport 1.4 inputs are available on the following location(s):

- Control & Communication module

DisplayPort 1.4 specifications

Pixel rate	Up to 1080 MHz pixel clock
Color format support	• RGB • YCbCr 4:2:2 • YCbCr 4:4:4
Color depth support	• 18 bpp • 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	• Field sequential 3D (Active 3D) • Passive stereoscopic 3D (Passive stereo) converted to active 3D
Video timings	• 1920 x 1080 @60 Hz and @120 Hz • 1920 x 1200 @60 Hz and @120 Hz • 1920 x 2160 @60 Hz and @120 Hz • 2560 x 1600 @24 Hz, @60 Hz and @120 Hz • 3840 x 2160 @24 Hz, @50 Hz and @60 Hz • 3840 x 2400 @24 Hz, @50 Hz and @60 Hz • 4096 x 2176 @60 Hz • 960 x 2160 @60 Hz and @120 Hz

CAUTION: In order to display high resolution images (e.g.: 3840 x 2160 @60 Hz or higher) via the DisplayPort input, the quality of the cable must be adequate, in addition the length of the cable can also influence the performance (recommended maximum ~1 meter for DP 1.4 and ~1.2 meter for DP 1.2);. In case there is an issue with one of these criteria the automatic link-training initiated by the DP-standard may decide to switch to a lower resolution.

A.8 Specifications DisplayPort 1.2 inputs

Availability

The DisplaPort 1.2 inputs are available on the following location(s):

- Pulse Quad DP 1.2 input

DisplayPort 1.2 specifications

<table>
<tr><td>Pixel rate</td><td colspan="3">Up to 600 MHz pixel clock</td></tr>
<tr><td>Color space</td><td colspan="3">• YCbCr 4:2:2
• YCbCr 4:4:4
• RGB 4:4:4</td></tr>
<tr><td>Color depth</td><td colspan="3">• 24 bpp
• 30 bpp
• 36 bpp</td></tr>
<tr><td>Data rate support</td><td colspan="3">• 1.62 Gbps: Reduced Bit Rate (RBR)
• 2.7 Gbps: High Bit Rate (HBR)
• 5.4 Gbps: High Bit Rate 2 (HBR2)</td></tr>
<tr><td>For future release</td><td colspan="3">• Interlaced support
• HDCP 1.4</td></tr>
<tr><td>Audio</td><td colspan="3">Not supported</td></tr>
<tr><td>3D support</td><td colspan="3">• Field sequential 3D (Active 3D)
• Passive stereoscopic 3D (Passive stereo) converted to active 3D</td></tr>
<tr><td rowspan="2">Video timings progressive</td><td>2D / 3D</td><td>Layout Mode[7]</td><td>Supported formats</td></tr>
<tr><td>2D</td><td>Standard layout (1x1 layout)</td><td>• 1920 x 1080 @60 Hz and @120 Hz
• 1920 x 1200 @60 Hz and @120 Hz
• 1920 x 2160 @60 Hz and @120 Hz
• 2560 x 1600 @24 Hz, @60 Hz and @120 Hz
• 3840 x 2160 @24 Hz, @50 Hz and @60 Hz</td></tr>
</table>

7. Only 1x1 layout is supported on the Quad Combo input boards. The Quad DP1.2 input supports all layout configurations.

			• 3840 x 2400 @24 Hz, @50 Hz and @60 Hz • 960 x 2160 @60 Hz and @120 Hz
	2D	2 column mode (2x1 layout)	• 1920 x 2160 @60 Hz and @120 Hz • 1920 x 2400 @60 Hz • 2048 x 2160 @60 Hz and @120 Hz
	2D	4 quadrant mode (2x2 layout)	• 960 x 1080 @120 Hz • 960 x 1200 @120 Hz • 1280 x 1080 @60 Hz and @120 Hz • 1280 x 1600 @60 Hz and @120 Hz • 1920 x 1080 @120 Hz • 1920 x 1200 @120 Hz • 2048 x 1080 @120 Hz
	2D	4 column mode (4x1 layout)	• 960 x 2160 @120 Hz • 960 x 2400 @120 Hz • 1024 x 2160 @60 Hz
	Active 3D	Standard layout (1x1 layout)	• 1600 x 1200 @120 Hz • 2560 x 1080 @120 Hz • 2560 x 1600 @120 Hz
	Active 3D	2 column mode (2x1 layout)	1920 x 2160 @120 Hz
	Active 3D	4 quadrant mode (2x2 layout)	• 1920 x 1080 @120 Hz • 1920 x 1200 @120 Hz • 2048 x 1080 @120 Hz
	Active 3D	4 column mode (4x1 layout)	• 960 x 2160 @120 Hz • 960 x 2400 @120 Hz • 1024 x 2160 @120 Hz
	Passive stereo	Standard layout (1x1 layout)	3840 x 2160 @60 Hz
	Passive stereo	2 column mode (2x1 layout)	1920 x 2160 @60 Hz

CAUTION: In order to display high resolution images (e.g.: 3840 x 2160 @60 Hz) via the DP1.2 input, the quality of the cable must be adequate, in addition the length of the cable can also influence the performance. In case there is an issue with one of these criteria the automatic link-training initiated by the DP-standard may decide to switch to a lower resolution.

A.9 Specifications SFP inputs

Availability

The SFP inputs are available on the following location(s):

- Pulse SFP input

SFP specifications

Color space	YCbCr
Color depth	10 bpc
Chroma sampling	4:2:2
Audio support	not supported

Video timings progressive	Type	Port type	Format
	HD-SDI	Single link	• 1920 x 1080 up to and including @30 Hz • 1280 x 720 up to and including @60 Hz
	3G-SDI	Single link	1920 x 1080 @50 Hz and @60 Hz 1920 x 1200 @50 Hz, @59.94 Hz and @60 Hz. 2048 x 1080 @50 Hz and @60 Hz
	12G-SDI	Single link	3840 x 2160 @50 Hz and @60 Hz 4096 x 2160 @50 Hz and @60 Hz 3840 x 2400 @50 Hz, @59.94 and @60 Hz

DMX chart

B

B.1 DMX chart input module position

About the input boards

The projectors have a Control and Communication panel, as well as up to two input slots (amount depends on model). These input slots are marked internally as “L1” and “L2”.

The input selection commands in the basic DMX chart only applies to the input module in slot L1.

The input selection commands in the extended DMX chart are as follows:

- Use channel 2 to target the input module located in slot L1
- Use channel 14 to target the input module located in slot L2 (if available).

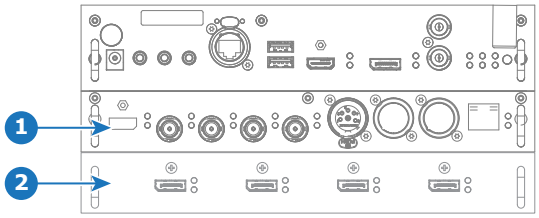


Image B–1

1 Slot L1, here filled with the Quad combo Input MKIII module
2 Slot L2, here filled with the Quad DP 1.2 Input module

B.2 DMX chart, Basic

Overview

Ch.	Function	Value	Default	Action
1	Shutter + Intensity	0 - 7	255	Close shutter
		8 - 255		Adjust intensity
2	Profile selection + Input selection on input board installed in slot L1	0 - 7	0	No function
		8 - 15		Activate first profile preset (If held for 1 second)
		16 - 23		Activate second profile preset (If held for 1 second)
		24 - 31		Activate third profile preset (If held for 1 second)
		32 - 39		Activate fourth profile preset (If held for 1 second)
		40 - 47		Activate fifth profile preset (If held for 1 second)
		48 - 55		Activate sixth profile preset (If held for 1 second)
		56 - 63		Activate seventh profile preset (If held for 1 second)
		64 - 71		Activate eighth profile preset (If held for 1 second)
		72 - 79		Activate ninth profile preset (If held for 1 second)
		80 - 87		Activate tenth profile preset (If held for 1 second)
		88 - 95		Select HDMI input on the Control and Communication module (If held for 1 second)
		96 - 103		Select DisplayPort input on the Control and Communication module (If held for 1 second)
		104 - 111		Select HDMI input on Quad Combo MKIII (If held for 1 second)
		112 - 119		Select SDI Input A on Quad Combo MKIII (If held for 1 second)
		120 - 127		Select SDI Input B on Quad Combo MKIII (If held for 1 second)

Ch.	Function	Value	Default	Action
		128 - 135		Select SDI Input C on Quad Combo MKIII (If held for 1 second)
		136 - 143		Select SDI Input D on Quad Combo MKIII (If held for 1 second)
		144 - 151		Select Quad SDI on Quad Combo MKIII (If held for 1 second)
		152 - 159		Select HDBaseT input on Quad Combo MKIII if installed in slot L1 (If held for 1 second)
		160 - 167		Select DisplayPort Input A on Quad DP if installed in slot L1 (If held for 1 second)
		168 - 175		Select DisplayPort Input B on Quad DP if installed in slot L1 (If held for 1 second)
		176 - 183		Select DisplayPort Input C on Quad DP if installed in slot L1 (If held for 1 second)
		184 - 191		Select DisplayPort Input D on Quad DP if installed in slot L1 (If held for 1 second)
		192 - 199		Select Dual DisplayPort AB on Quad DP if installed in slot L1 (If held for 1 second)
		200 - 207		Select Quad column DisplayPort on Quad DP if installed in slot L1 (If held for 1 second)
		208 - 215		Power on / Light source on (If held for 5 seconds)
		216 - 223		Power down / Light source off (if held for 5 seconds)
		224 - 255		Reserved for future functionality

B.3 DMX chart, Extended

Overview

Ch.	Function	Value	Default	Actions
1	Shutter + Intensity	0 - 7	255	Close shutter
		8 - 255		Adjust intensity
2	Brightness	0 - 255	128	Adjusts the brightness between 0 and 100% on input.
3	Contrast	0 - 255	128	Adjusts the contrast between 0 and 100% on input
4	Profile selection + Input selection on input board installed in slot L1	0 - 7	0	No function
		8 - 15		Activate first profile preset (If held for 1 second)
		16 - 23		Activate second profile preset (If held for 1 second)
		24 - 31		Activate third profile preset (If held for 1 second)
		32 - 39		Activate fourth profile preset (If held for 1 second)
		40 - 47		Activate fifth profile preset (If held for 1 second)
		48 - 55		Activate sixth profile preset (If held for 1 second)
		56 - 63		Activate seventh profile preset (If held for 1 second)
		64 - 71		Activate eighth profile preset (If held for 1 second)
		72 - 79		Activate ninth profile preset (If held for 1 second)
		80 - 87		Activate tenth profile preset (If held for 1 second)
		88 - 95		Select HDMI input on the Control and Communication module (If held for 1 second)

Ch.	Function	Value	Default	Actions
		96 - 103		Select DisplayPort input on the Control and Communication module (If held for 1 second)
		104 - 111		Select HDMI input on Quad Combo MKIII if installed in slot L1 (If held for 1 second)
		112 - 119		Select SDI Input A on Quad Combo MKIII if installed in slot L1 (If held for 1 second)
		120 - 127		Select SDI Input B on Quad Combo MKIII if installed in slot L1 (If held for 1 second)
		128 - 135		Select SDI Input C on Quad Combo MKIII if installed in slot L1 (If held for 1 second)
		136 - 143		Select SDI Input D on Quad Combo MKIII if installed in slot L1 (If held for 1 second)
		144 - 151		Select Quad SDI on Quad Combo MKIII if installed in slot L1 (If held for 1 second)
		152 - 159		Select HDBaseT input on Quad Combo MKIII if installed in slot L1 (If held for 1 second)
		160 - 167		Select DisplayPort Input A on Quad DP if installed in slot L1 (If held for 1 second)
		168 - 175		Select DisplayPort Input B on Quad DP if installed in slot L1 (If held for 1 second)
		176 - 183		Select DisplayPort Input C on Quad DP if installed in slot L1 (If held for 1 second)
		184 - 191		Select DisplayPort Input D on Quad DP if installed in slot L1 (If held for 1 second)
		192 - 199		Select Dual DisplayPort AB on Quad DP if installed in slot L1 (If held for 1 second)
		200 - 207		Select Quad column DisplayPort on Quad DP if installed in slot L1 (If held for 1 second)
		208 - 215		Select Quad DisplayPort on Quad DP if installed in slot L1 (If held for 1 second)
		216 - 223		Select Fiber input A if Pulse SFP is installed in slot L1
		224 - 231		Select Fiber input B if Pulse SFP is installed in slot L1
		232 - 255		Reserved for future functionality
5	Focus (MSB)	0 - 255	128	Set coarse lens focus adjustment[8]
6	Focus (LSB)	0 - 255	128	Set fine lens focus adjustment[8]
7	Zoom (MSB)	0 - 255	128	Set coarse lens zoom adjustment[8]
8	Zoom (LSB)	0 - 255	128	Set fine lens zoom adjustment[8]
9	Lens shift vertical (MSB)	0 - 255	128	Set coarse lens shift in vertical direction
10	Lens shift vertical (LSB)	0 - 255	128	Set fine lens shift in vertical direction
11	Lens shift horizontal (MSB)	0 - 255	128	Set coarse lens shift in horizontal direction
12	Lens shift horizontal (LSB)	0 - 255	128	Set fine lens shift in horizontal direction

8. Only when lens has been calibrated

Ch.	Function	Value	Default	Actions
13	Light Source Power[9]	0	0	Set light source to 100%
		1 - 61		Set light source to value From 100% to 40% in 1% reductions (e.g. 11 is 90%, 26 is 75%, etc)
		64		Set light source to 35%
		67		Set light source to 30%
		70		Set light source to 25%
		73		Set light source to 20%
		76		Set light source to 15%
		79		Set light source to 10%
		80 - 87		Power on / Light source on (If held for 5 seconds)
		88- 95		Power down / Light source off (if held for 5 seconds)
		96 - 255		Reserved for future functionality
14	Calibration + Input selection on input board installed in slot L2 (if available)	0 - 7	0	No functionality
		8 - 15		Calibrate lens zoom & focus (if held for 5 seconds)
		16 - 23		Calibrate lens horizontal and vertical shift (if held for 5 seconds)
		24 - 31		Calibrate lens (zoom, focus and shift) (if held for 5 seconds)
		32 - 103		Reserved for future functionality
		104 - 111		Select HDMI input on Quad Combo MKIII if installed in slot L2 (If held for 1 second)
		112 - 119		Select SDI Input A on Quad Combo MKIII if installed in slot L2 (If held for 1 second)
		120 - 127		Select SDI Input B on Quad Combo MKIII if installed in slot L2 (If held for 1 second)
		128 - 135		Select SDI Input C on Quad Combo MKIII if installed in slot L2 (If held for 1 second)
		136 - 143		Select SDI Input D on Quad Combo MKIII if installed in slot L2 (If held for 1 second)
		144 - 151		Select Quad SDI on Quad Combo MKIII if installed in slot L2 (If held for 1 second)
		152 - 159		Select HDBaseT input on Quad Combo MKIII if installed in slot L2 (If held for 1 second)
		160 - 167		Select DisplayPort Input A on Quad DP if installed in slot L2 (If held for 1 second)
		168 - 175		Select DisplayPort Input B on Quad DP if installed in slot L2 (If held for 1 second)
		176 - 183		Select DisplayPort Input C on Quad DP if installed in slot L2 (If held for 1 second)
		184 - 191		Select DisplayPort Input D on Quad DP if installed in slot L2 (If held for 1 second)
		192 - 199		Select Dual DisplayPort AB on Quad DP if installed in slot L2 (If held for 1 second)
		200 - 207		Select Quad column DisplayPort on Quad DP if installed in slot L2 (If held for 1 second)

9. If the Light Source is forced to an output below its minimum value, it will remain at its minimum output value

Ch.	Function	Value	Default	Actions
		208 - 215		Select Quad DisplayPort on Quad DP if installed in slot L2 (If held for 1 second)
		216 - 223		Select Fiber input A if Pulse SFP is installed in slot L2
		224 - 231		Select Fiber input B if Pulse SFP is installed in slot L2
		232 - 255		Reserved for future functionality

Dimensions

C

C.1 Projector outer dimensions

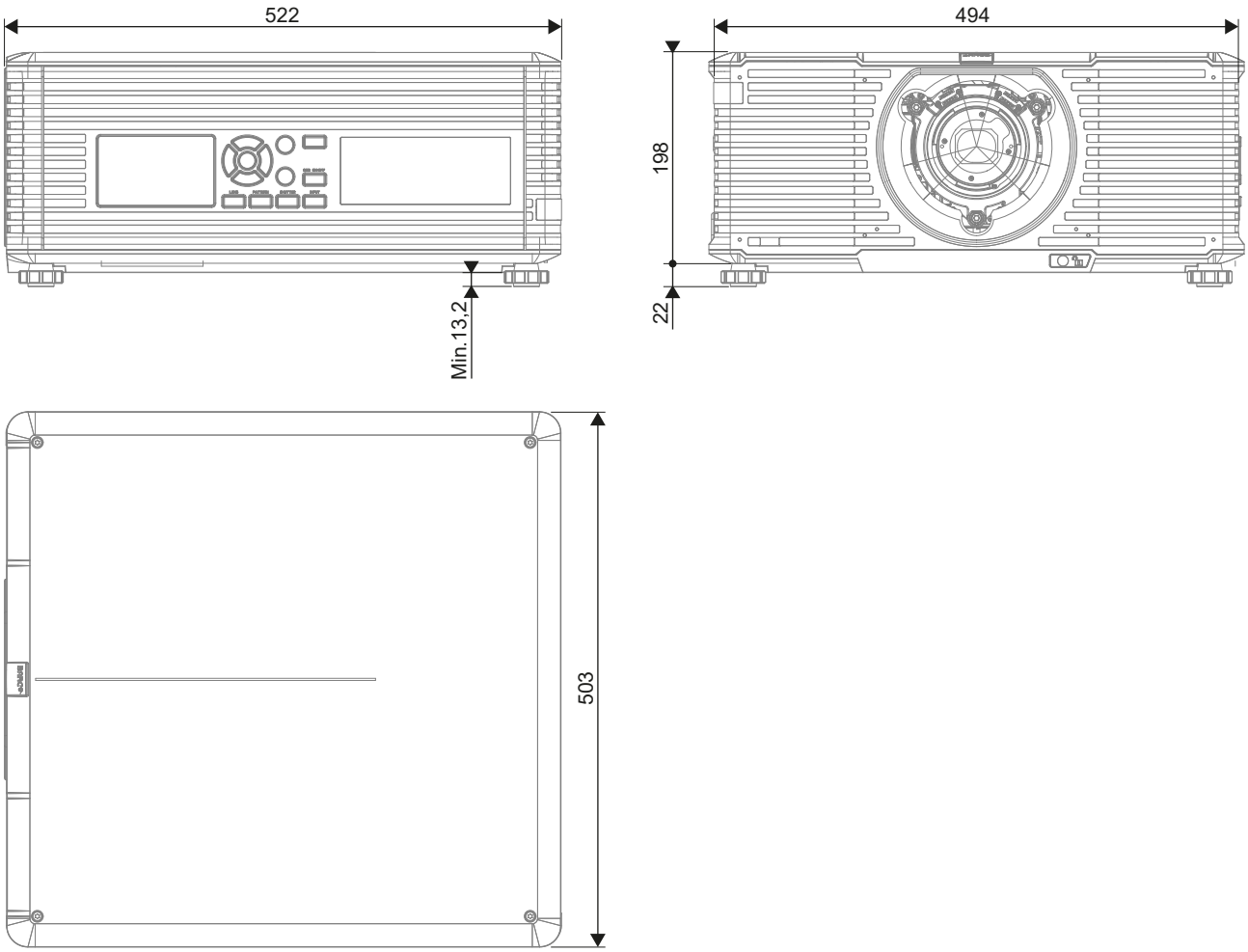


Image C–1 All dimensions given in mm.

C.2 Mounting holes bottom plate

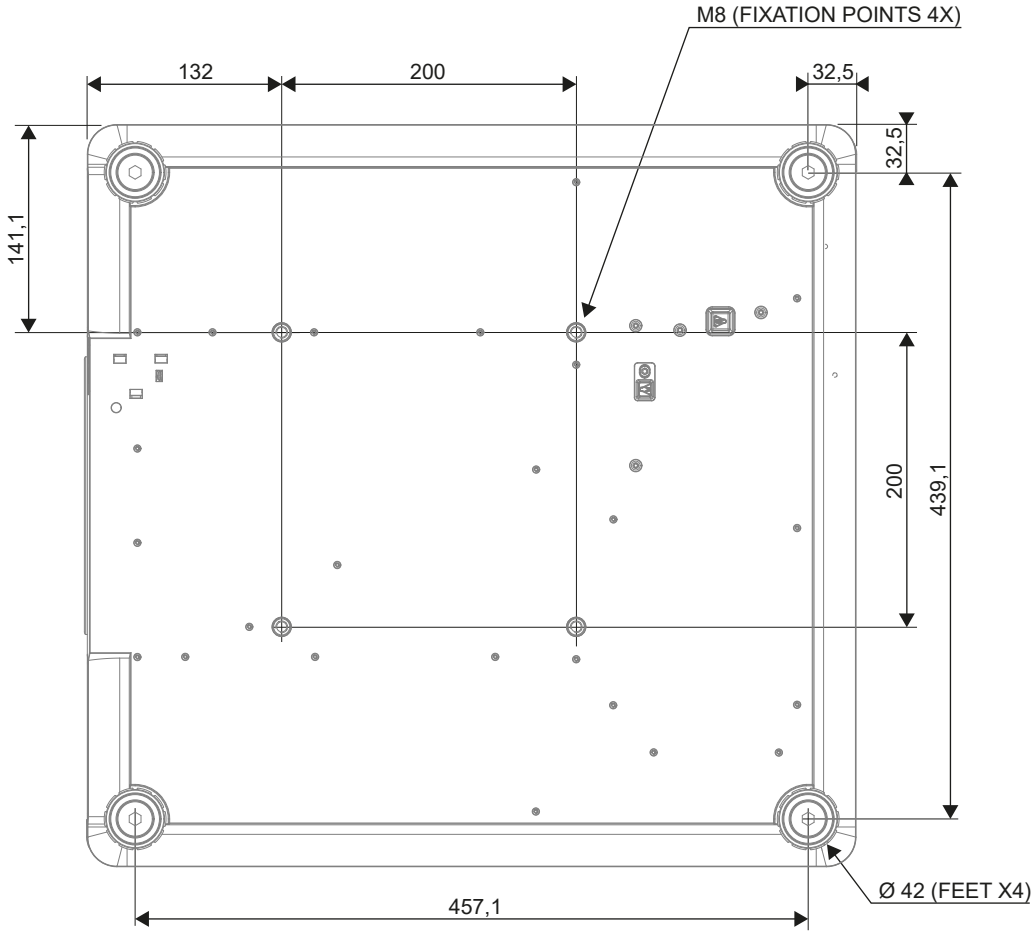


Image C–2 All dimensions given in mm.

Regulatory

D

D.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）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*.

D.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.

D.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

D.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

D.5 Product compliance Turkey

Turkey RoHS compliance

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

D.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).

D.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。

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
液晶显示面板 LCD panel	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。

D.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。

BSMI Reporting Obligor Information / 報驗義務人資訊

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）：GPI-A, GPI-B, GPI-C Equipment name: Projector, Type designation: GPI-A, GPI-B, GPI-C						
	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 (Cr6+)	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 Power Supply Unit	—	○	○	○	○	○
風扇 Fan	—	○	○	○	○	○
液晶顯示面板 LCD panel	—	○	○	○	○	○

設備名稱： 投影機， 型號（型式）： GPI-A, GPI-B, GPI-C Equipment name: Projector, Type designation: GPI-A, GPI-B, GPI-C						
	限用物質及其化學符號 Restricted substances and its chemical symbols					
單元 Unit	鉛 Lead (Pb)	汞 Mercu- ry (Hg)	鎘 Cadmi- um (Cd)	六價鉻 Hexava- lent chromi- um (Cr6+)	多溴聯苯 Polybromi- nated biphenyls (PBB)	多溴二苯醚 Polybromi- nated diphenyl ethers (PBDE)
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.

D.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.

USB Type-C™

USB Type-C and USB-C are a registered trademarks of USB Implementers Forum

HDBaseT™

HDBaseT™ and the HDBaseT Alliance logo are trademarks of the HDBaseT Alliance.

PJLink™

The PJLink™ is a registered trademark of Japan Business Machine and Information System Industries Association.

DLP™

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

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

D.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[10] 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.

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

Glossary

DMX

DMX-512 Lighting protocol over RS-485 interface. Carries information of 512 channels from a lighting controller to lighting devices. Standardized by USITT.

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.

Projector address

Address installed in the projector to be individually controlled.

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