QDX

User Manual

ENABLING BRIGHT OUTCOMES

BARCO

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Patent protection

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1 Safety

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About this document

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

Clarification of the term “QDX” used in this document

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

- QDX W35, QDX 4K35, QDX W45, QDX 4K45

Model certification name

- QDX W/4K Laph, QDX N4K Laph

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.

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 maximum permissible exposure 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 2 LASER PRODUCT - RISK GROUP 3.

Notice on laser radiation

The laser distance meter that is optional equipment for this projector can emit a class 2 laser ranging beam of 0.95 mW / 638 nm. When installed correctly, this distance meter is located on the front side of the projector (see red dot on Image 1–1). The laser beam can be enabled by either pressing the button on the equipment, via the projector menu, or via the projector software. Thermal retinal eye injury is possible when staring into the laser ranging beam.

Image 1–1

WARNING: Laser Radiation - Do not stare into laser ranging beam, Class 2 IEC 60825-1: 2014, EN 60825-1:2014 +A11:2021.

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 matches the projector electrical ratings (100-160 V (reduced power) / 200-240 V~, 22 A, 50/60 Hz). If you are unable to install the AC requirements, contact your electrician. Do not defeat the purpose of the grounding.
- This apparatus must be grounded (earthed) via the supplied 3 conductor AC power cable. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the purpose of the grounding-type plug.
- Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord. To disconnect the cord, pull it out by the plug. Never pull the cord itself.

- Use only the power cord supplied with your device. While appearing to be similar, other power cords have not been safety tested at the factory and may not be used to power the device. For a replacement power cord, contact your dealer.
- Do not operate the projector with a damaged cord. Replace the cord.
- Do not operate the projector if the projector has been dropped or damaged - until it has been examined and approved for operation by qualified service personnel.
- Position the cord so that it will not be tripped over, pulled, or contact hot surfaces.
- If an extension cord is necessary, a cord with a current rating at least equal to that of the projector should be used. A cord rated for less amperage than the projector may overheat.
- Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electrical shock.
- Do not expose this projector to rain or moisture.
- Do not immerse or expose this projector in water or other liquids.
- Do not spill liquid of any kind on this projector.
- Should any liquid or solid object fall into the cabinet, unplug the set and have it checked by qualified service personnel before resuming operations.
- Do not disassemble this projector, always take it to qualified service personnel when service or repair work is required.
- Do not use an accessory attachment which is not recommended by the manufacturer.
- Lightning - For added protection for this video product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet. This will prevent damage to the device due to lightning and AC power-line surges.

To prevent personal injury

- To prevent injury and physical damage, always read this manual and all labels on the system before powering the projector or adjusting the projector.
- To prevent injury, take note of the weight of the projector. Minimum 4 persons are needed to carry the projector. The projector weights about ±79 kg (±175 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.
- High Brightness Warning: The projector light source may not be switched on or the shutter must be closed when no projection lens is installed.
- 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.
- **Warning**: Laser radiation. Do not stare into laser ranging beam. Class 2 laser beam could result in damage to the eye.
- Don’t put your hand in front of the beam.
- Before attempting to remove any of the projector's covers, you must turn off the projector and disconnect from the wall outlet.
- When required to switch off the projector, to access parts inside, always disconnect the power cord from the power net.
- **The power input at the projector side is considered as the disconnect device. When required to switch off the projector, to access parts inside, always disconnect the power cord at the projector side. In case the power input at the projector side is not accessible (e.g. ceiling mount), the socket**

outlet supplying the projector shall be installed nearby the projector and be easily accessible, or a readily accessible general disconnect device shall be incorporated in the fixed wiring.

- Never stack more than 2 QDX projectors in a hanging configuration (truss) and never stack more than 3 QDX 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 or shields 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.
- **Cooling liquid circuit.** The projector contains a cooling circuit filled with Mono-ethylene glycol (1,2-ethane diol) and inhibitors in aqueous solution (34% active). When the cooling circuit leaks, switch off the device and contact qualified service personnel. The liquid is not for household use. Keep out of reach of children. Harmful by oral intake. Avoid exposure to pregnant women. Avoid contact with eyes, skin and clothing. Avoid inhale of the noxious fumes.
- 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 large screen projection products are designed and manufactured to meet the most stringent safety regulations. This projector radiates heat on its external surfaces and from ventilation ducts during normal operation, which is both normal and safe. Exposing flammable or combustible materials into close proximity of this projector could result in the spontaneous ignition of that material, resulting in a fire. For this reason, it is absolutely necessary to leave an “exclusion zone” around all external surfaces of the projector whereby no flammable or combustible materials are present. The exclusion zone must be not less than 40 cm (16”) for this projector.
- 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.
- Ensure that the projector is solidly mounted so that the projection light path cannot be changed by accident.
- Do not cover the projector or the lens with any material while the projector is in operation. 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.
- 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= 0°C (32°F) to 40°C (104°F)
- Rated humidity = 0% RH to 80% RH Non-condensed.
- Ensure that nothing can be spilled on, or dropped inside the projector. If this does happen, switch off and remove all power from the projector. Do not operate the projector again until it has been checked by qualified service personnel.
- Do not use this equipment near water.

Air cleanness

- The projector must be installed in environments where the amount of dust particles is as low as expected in a standard office environment.
- The environment must be clean and free from hostile airborne particles which may have harmful effects, such as – and not limited to - airborne contaminants produced by smoke or snow machines, contaminants derived from chemical products such as (and not limited to) disinfectants, conducting types of dust, excessive dust.
  - These contaminants deposit a thin layer of greasy residue on the projectors internal optics and electronic boards, degrading performance and leading to failures.
    - Damage of this nature is under no circumstances covered under the manufacturer's warranty and may deem the warranty null and void.
    - The manufacturer reserves the right to refuse repair if a projector has been subject to knowingly neglect, abandon or improper use.
    - If the specified environmental conditions cannot be guaranteed, the projector must be removed, or switched off and fully protected until the requirements are fulfilled.
    - Devices or structures to extract or shield contaminated air well away from the projector are a prerequisite, if this is not a feasible solution then the projector must be relocated to a clean air environment
    - Failure to take suitable precautions to protect the projector from the effects of air contaminants as mentioned above will culminate in extensive and irreversible damage.

Cooling

- The projector must always be installed in a manner which ensures free flow of air into its air inlets.
- Do not block the projector cooling fans or free air movement around the projector.
- Slots and openings in the cabinet are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register. The device should not be placed in a built-in installation or enclosure unless proper ventilation is provided.
- If more than one projector is installed in a common projection booth, the exhaust air flow requirements are valid for EACH individual projector system. Note that inadequate air extraction or cooling will result in decreased life expectancy of the projector as a whole as well as causing premature failure of the lasers.
- The air filters of the projector must be cleaned or replaced on a regular basis. Cleaning the booth area would be monthly-minimum. Neglecting this could result in disrupting the air flow inside the projector, causing overheating. Overheating may lead to the projector shutting down during operation.
- In order to ensure that correct airflow is maintained, and that the projector complies with Electromagnetic Compatibility (EMC) and safety requirements, it should always be operated with all of it's covers in place.

DMD protection

- Special care should be used when DLP projectors are used in the same room as high power laser equipment. Direct or indirect hitting of a laser beam on to the lens can severely damage the Digital Mirror Devices™ in which case there is a loss of warranty.
- Never place the projector in direct sunlight. Sunlight on the lens can severely damage the Digital Mirror Devices™ in which case there is a loss of warranty.
- Add the optional external shutter to protect the projector optics from other light sources (e.g. direct sunlight, other laser light sources, etc) when the projector light source is off.

Operation

- Only use Barco projection lenses that are supported for the 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 and transporting

- Stack maximum 2 rental flight cases high. Never higher.
- Surface on which flight case is standing must be level to ensure that the total load is evenly spread out among the four wheels. The surface must also be able to support the load safely.
- Before stacking or transporting flight cases, check the wheels and their fixation screws for wear or defects.
- Before stacking or transporting flight cases, check that the four lock handles on each flight case are in good working order and locked securely.
- When stacked, make sure the wheels of the upper flight case are precisely positioned in the stacking dishes of the flight case below.
- Stacked flight cases may not be moved. Before stacking, the lower flight case must already be in its final resting position before placing the second upon it.
- Never stack loaded flight cases in a truck or other transport medium, unless each flight case is rigidly strapped tight.
- In the event of a wheel breaking, flight cases must be rigidly strapped tight to prevent a stack collapsing.
- Use an appropriate forklift to raise flight cases and take the necessary precautions to avoid personnel injury.

Safety Data Sheets for Hazardous Chemicals

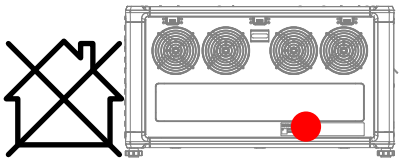
For safe handling information on chemical products, consult the Safety Data Sheet (SDS). SDSs are available upon request via safetydatasheets@barco.com.

1.3 Product safety labels

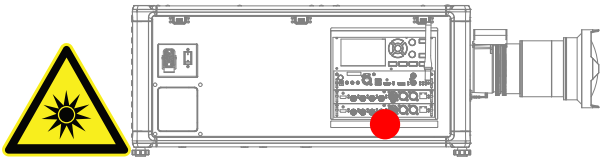
Light beam related safety labels

Safety labels explanation and location:

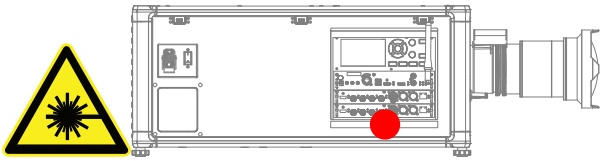
Hazard RG3:
Not for household use symbol.

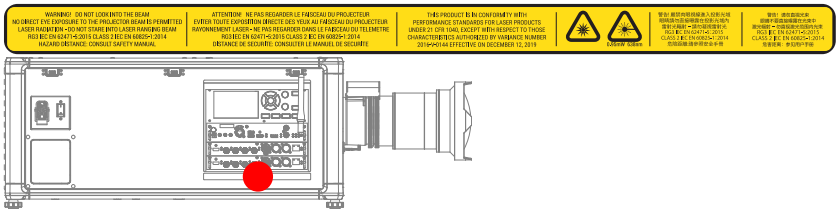


Hazard RG3:
Optical radiation warning symbol.



Hazard class 2:
Laser radiation warning symbol.
0.95 mW - 638 nm





WARNING! DO NOT LOOK INTO THE BEAM. NO DIRECT EYE EXPOSURE TO THE BEAM IS PERMITTED. LASER RADIATION - DO NOT STARE INTO LASER RANGING BEAM. RG3 IEC EN 62471–5:2015. CLASS 2 IEC EN 60825–1:2014. HAZARD DISTANCE: CONSULT SAFETY MANUAL.

ATTENTION ! NE PAS REGARDER LE FAISCEAU DU PROJECTEUR. EVITER TOUTE EXPOSITION DIRECTE DES YEUX AU FAISCEAU DU PROJECTEUR. RAYONNEMENT LASER - NE PAS REGARDER DANS LE FAISCEAU DU TELEMETRE. RG3 IEC EN 62471-5:2015. CLASS 2 IEC EN 60825-1:2014. DISTANCE DE SECURITE : CONSULTER LE MANUEL DE SECURITE.

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 ON DECEMBER 12, 2019.

警告! 嚴禁肉眼視線進入投影光域. 眼睛請勿直接曝露在投影光域內. 雷射光輻射 – 請勿凝視雷射光. RG3 IEC EN 62471-5：2015 CLASS 2 IEC EN 60825-1：2014. 危險距離:請參照安全手冊.

警告！勿观看投影机光束 眼睛勿直接接触可允许暴露的光束 激光辐射-勿直视激光范围内光束 RG3 IEC EN 62471-5：2015 CLASS 2 IEC EN 60825-1：2014 危害距离：请参考安全手册.

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 20.

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

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

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

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

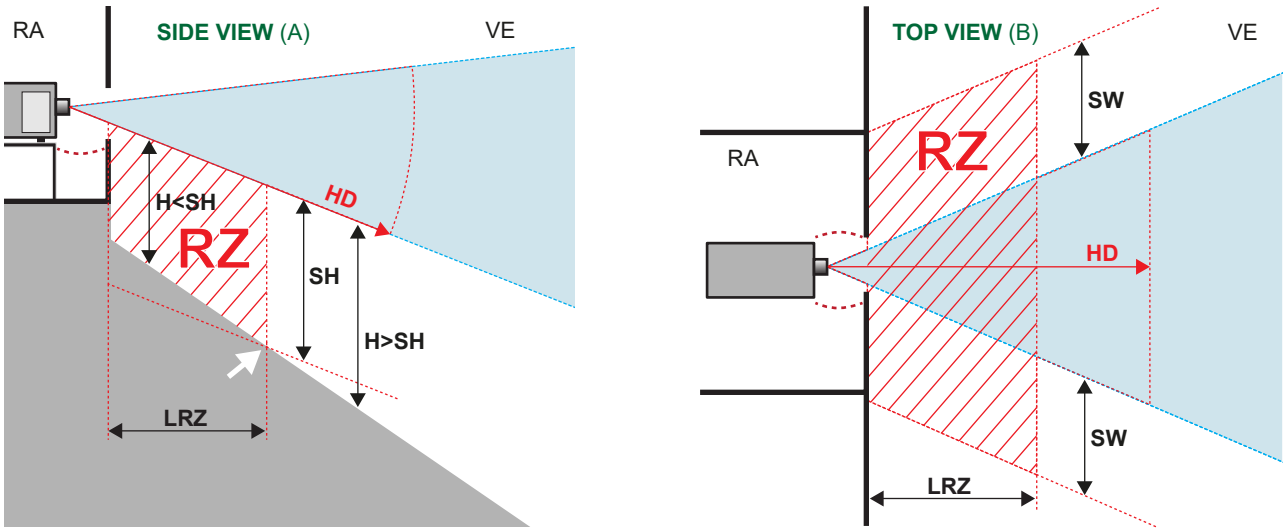


Image 1–2

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 1–3 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 1–3.

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

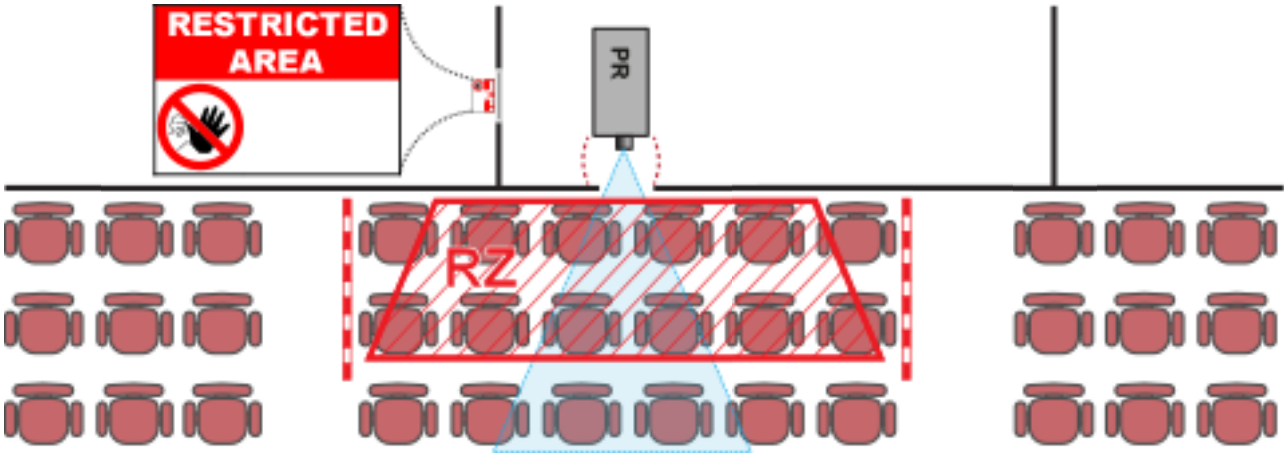


Image 1–3

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).

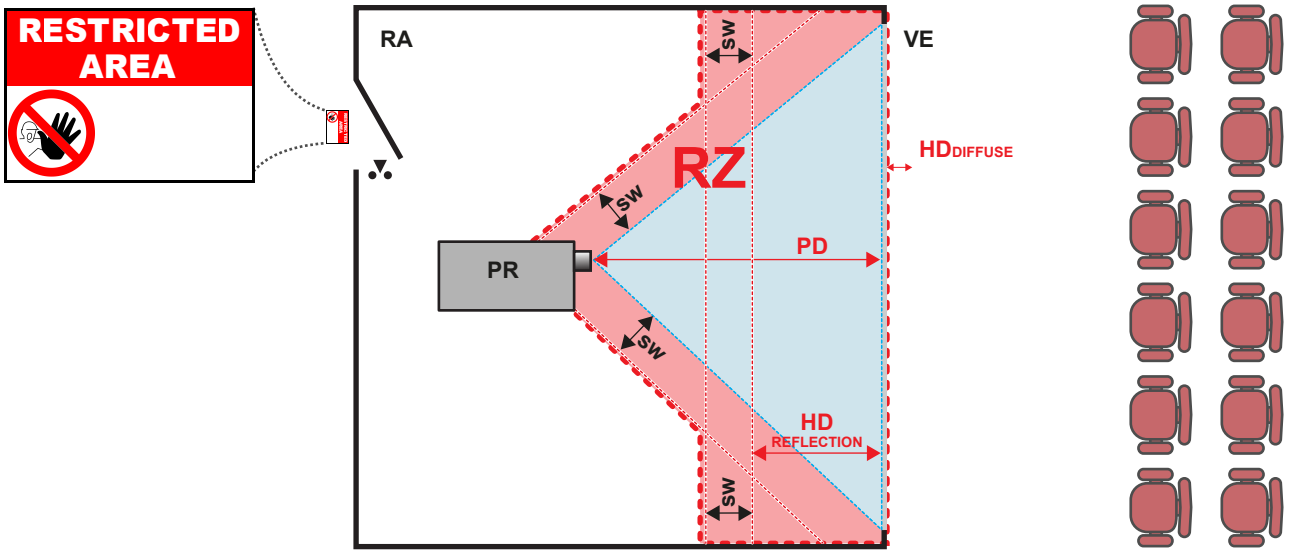


Image 1–4

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 20.

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

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

1.6 HD 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.

1.7 HD in function of modifying optics

Hazard distance

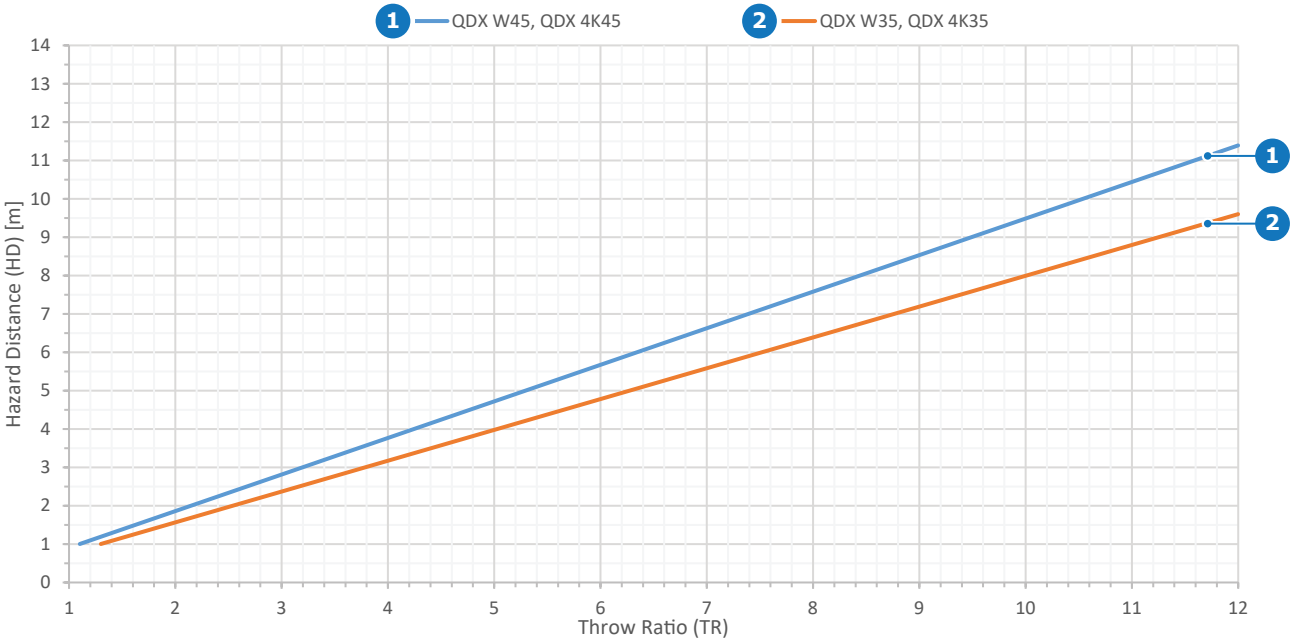


Image 1–5

HD Hazard Distance
TR Throw Ratio

No hazard distance measures applicable when the hazard distance is shorter than 1 meter. Like with any bright light source, do not stare into the beam and prevent close exposure to children.

1.8 Radio equipment

CE Conformity

The Pulse 4G module for the Pulse Input & Communication unit, which are fit for use in the European Union countries, EFTA and Turkey.

When using a WiFi dongle with the Pulse Input & Communication unit, the use is restricted to indoor use only when operating in the 5150 to 5250 MHz frequency range.

Hereby, Barco NV declares that the radio equipment type “4G module for the Pulse Input & Communication unit” is in compliance with the Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: *https://www.barco.com/en/support/docs/TDE12980*

For 4G LTE (Max EIRP: 20 dBm)

- Band 1: Frequency: 2100 MHz
- Band 3: Frequency: 1800 MHz
- Band 7: Frequency: 2600 MHz
- Band 8: Frequency: 900 MHz
- Band 20: Frequency: 800 MHz
- Band 28: Frequency: 700 MHz
- Band 34: Frequency: 2100 MHz
- Band 38: Frequency: 2600 MHz

For UMTS (Max EIRP: 20 dBm)

- Band 1: Frequency: 2100 MHz
- Band 8: Frequency: 900 MHz

1.9 Compliance

UK Compliance

This product is fit for use in the UK.

Authorised Representative: Barco UK Ltd

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

1.10 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.

QDX introduction 2

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2.3 Projector airflow 25
2.4 Projector status 26
2.5 Pulse Prospector 26

About this chapter

This chapter and by extension this whole document, the **QDX user guide**, is intended for the user who want's 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 **QDX 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 67, 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.

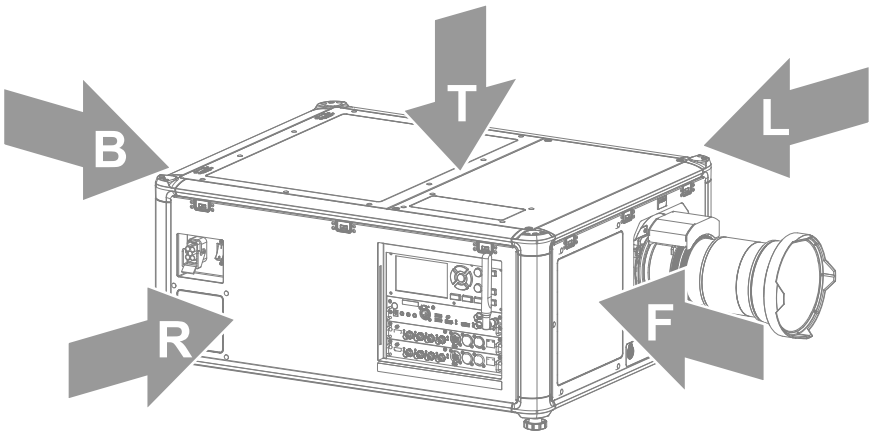

Image 2–1

T Top
L Left
F Front
R Right
B Back

2.2 Projector components

Component location

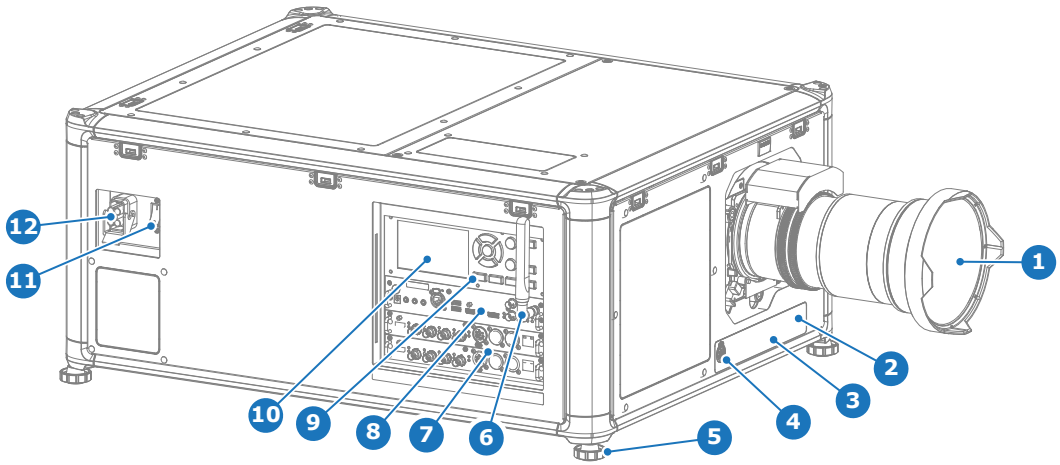

Image 2–2

1 Projection lens
2 Front IR sensor
3 Optional laser range finder and camera kit
4 Front XLR connector
5 Adjustable projector feet (x4)
6 Optional GSM module
7 Optional input slot (x2)
8 Control & communication panel
9 Local keypad
10 LCD touch panel
11 Power switch
12 Power socket

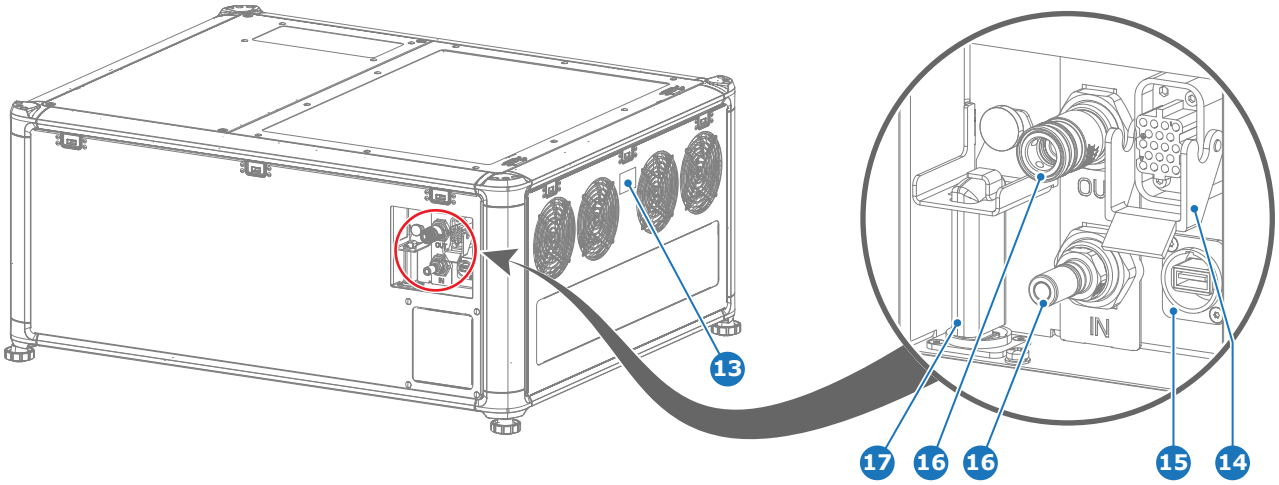

Image 2–3

13 IR receiver back
14 Optional external cooler power and data connection
15 Optional rigging frame USB connector
16 Optional external cooler cooling connectors
17 Optional WIFi module

2.3 Projector airflow

Air inlets and outlets

The projector has five air inlet channels and two air outlet channels. The air outlets are located at the rear side of the projector. The air inlet is located at the front, top, left and right side of the projector.

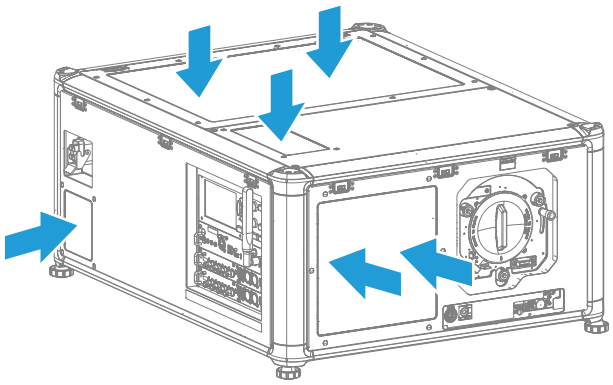

Image 2–4

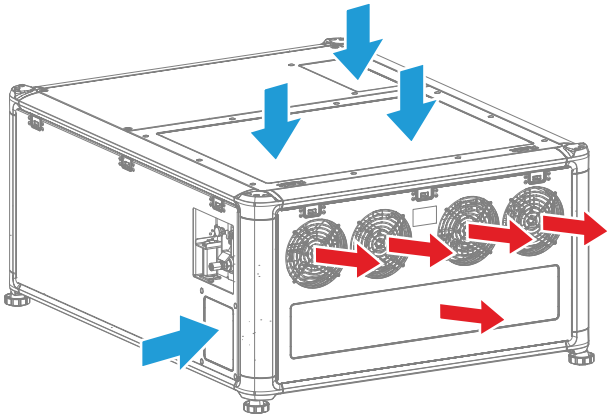

Image 2–5

WARNING: Keep the air inlets and outlet at all times free.

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.

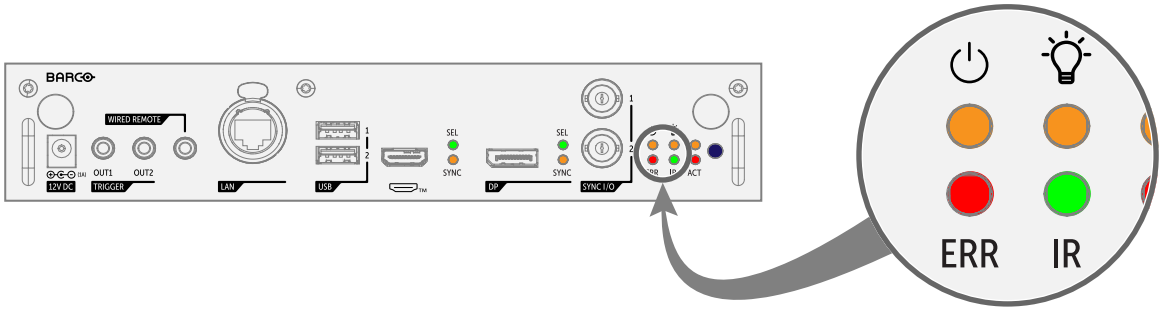

Image 2–6 Location of projector status LEDs.

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

2.5 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.

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.

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*.

3 Local keypad

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3.1 Local keypad functions

Local keypad overview

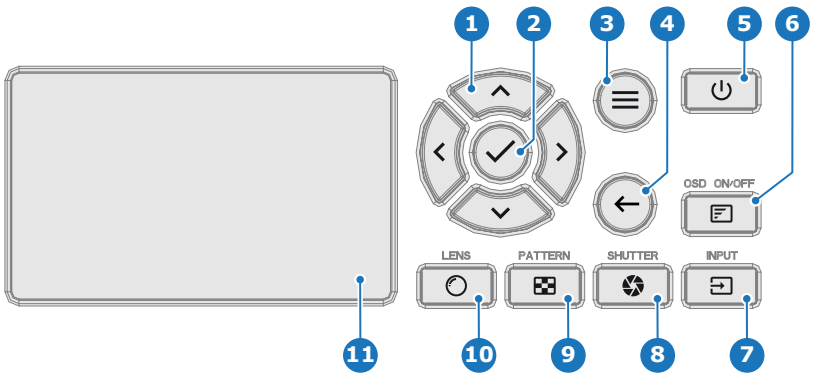

Image 3–1

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.

3.2 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

3.3 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.

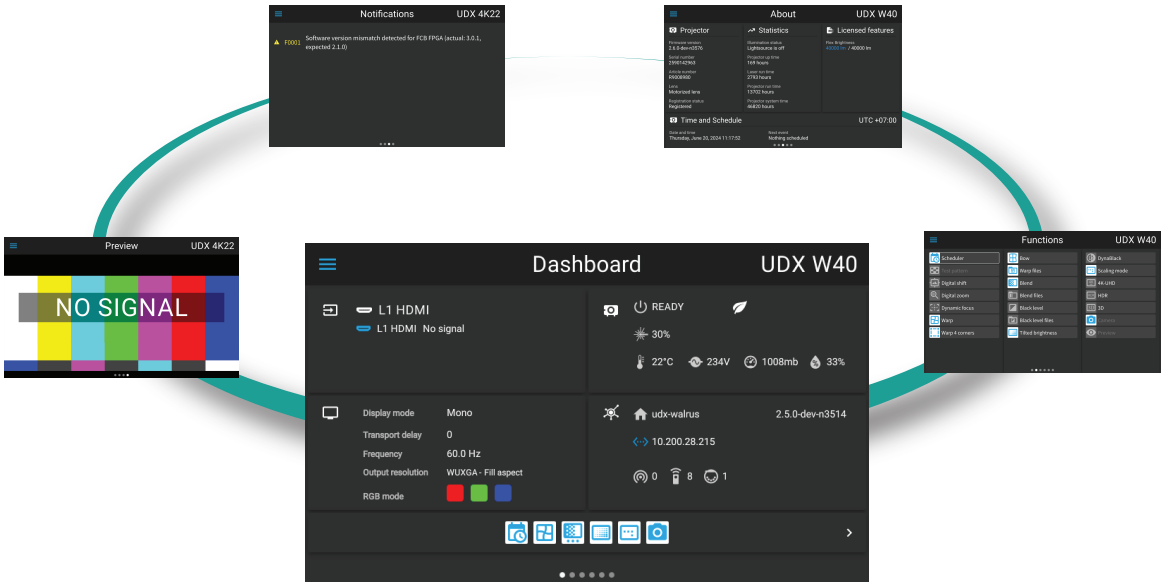

Image 3–2 Example of the Pulse OSD user interface

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.

Pulse Remote Control Unit

4

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4.7 Using the XLR connector of the RCU 37
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4.9 Pulse RCU silicone protection sleeve (optional) 38

4.1 Pulse RCU functions

Functions

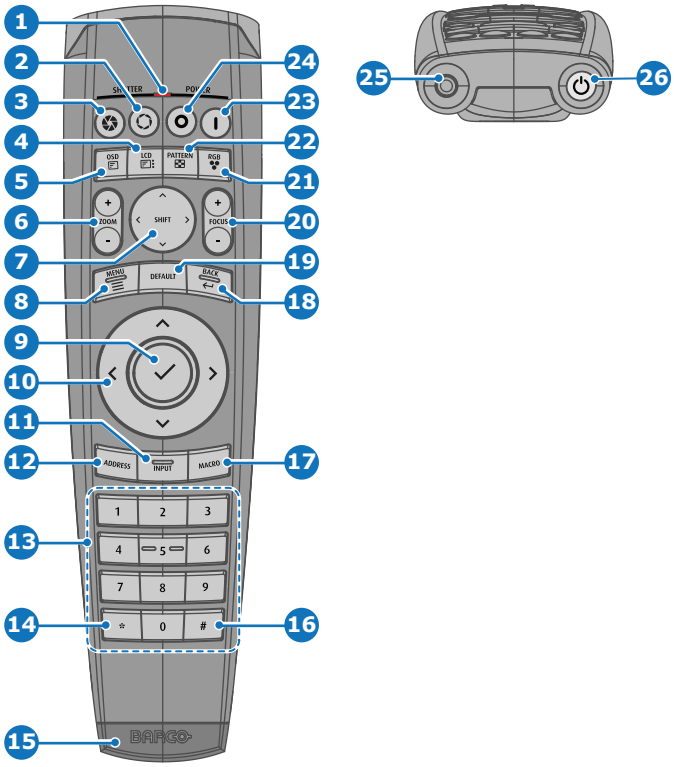

Image 4–1

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

4.2 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).

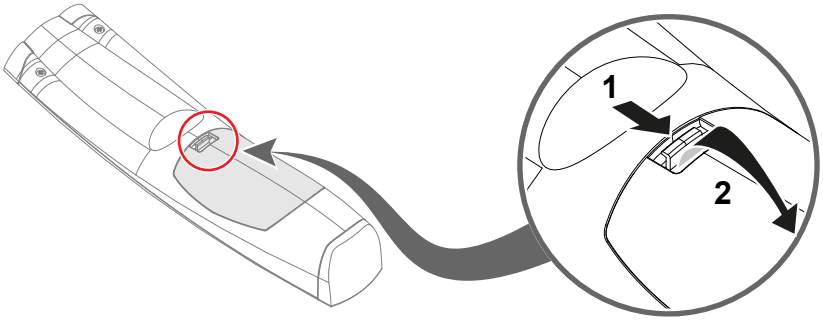

Image 4–2

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.

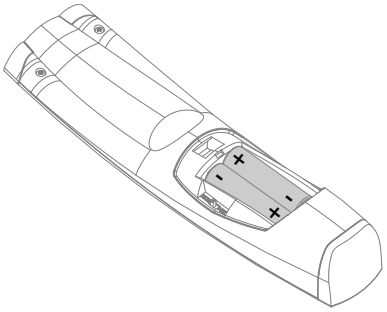

Image 4–3

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).

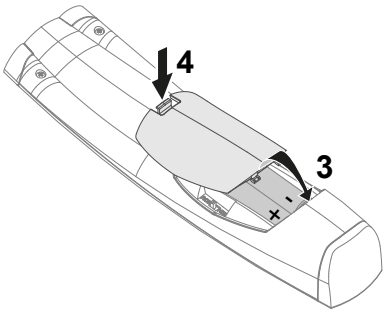

Image 4–4

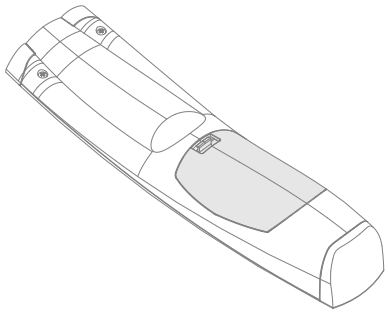

Image 4–5

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

4.3 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 4–6). 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”.

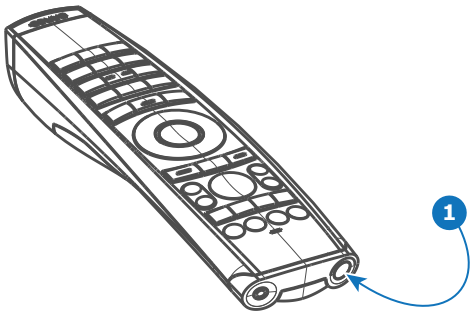

Image 4–6

4.4 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.

4.5 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.

4.6 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.

4.7 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 54.

How to use the XLR connector

1. Pull the XLR cover backwards.

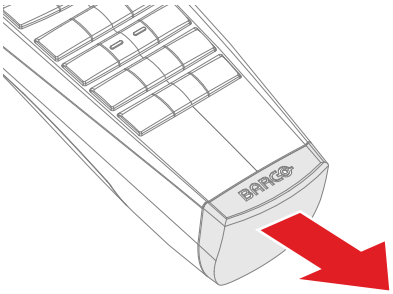

Image 4–7

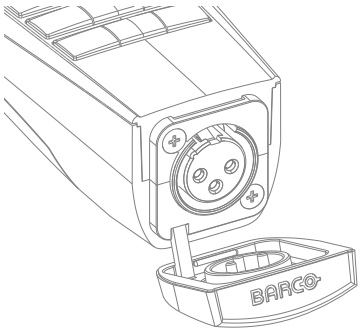

Image 4–8

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.

4.8 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 4–9) of the RCU.

2. Connect the other end of the cable with the mini-jack input of the projector.

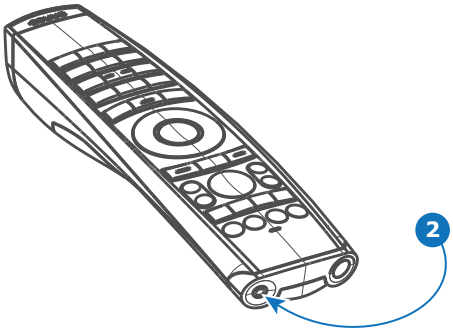

Image 4–9

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

4.9 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.

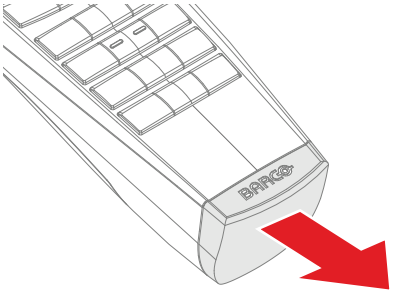

Image 4–10

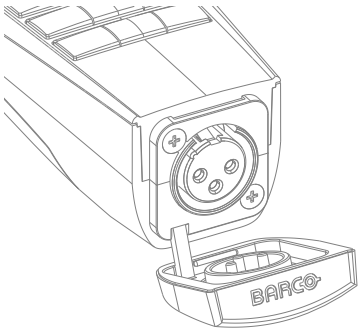

Image 4–11

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.

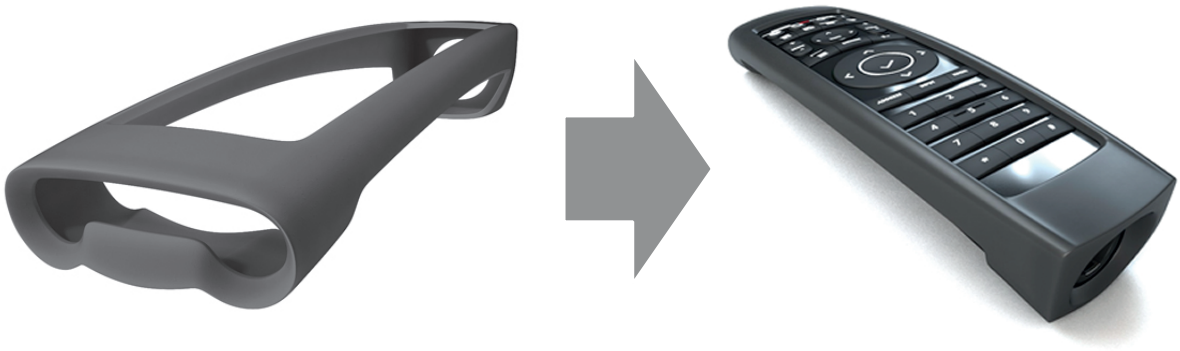

Image 4–12

5 Powering on / off

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5.3 Power Off the projector 43
5.4 Power mode transitions 44

5.1 Power modes

Overview

The QDX 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 (Wake-on-LAN).

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.

5.2 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 5–1

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 5–2

5.3 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 in the Power menu (see Pulse OSD user guide) the projector will automatically go to **READY** mode after a time-out if no sync is detected on the chosen source input (default 15 minutes).

   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 in the Power menu (see Pulse OSD user guide) the projector will automatically go to **STANDBY** mode after a time-out if no activity is happening on the projector (default 15 minutes).

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 in the Power menu (see Pulse OSD user guide) the projector will automatically go to **ECO STANDBY** mode after a time-out (default 15 minutes).

Some actions like apply a grey test pattern are done during the two minutes of the cool down phase 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 mains cord or by cut down of 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.

5.4 Power mode transitions

Power transition diagram

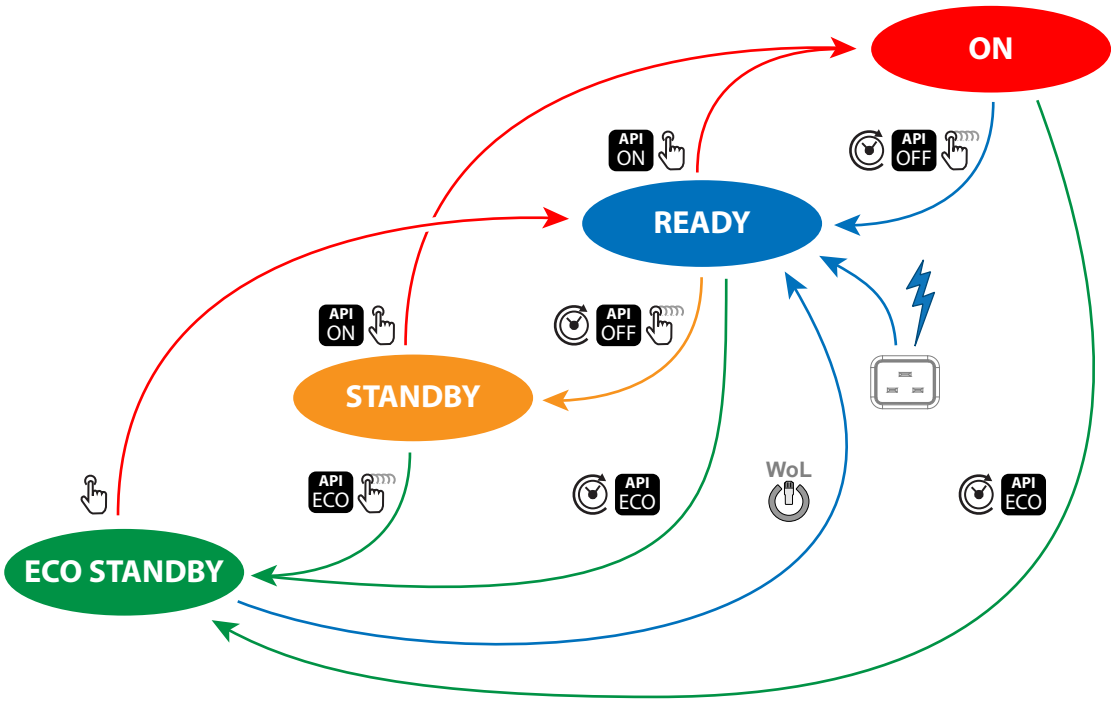

Image 5–3

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

6

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6.1 Control & Communication module

Front panel Control & Communication module

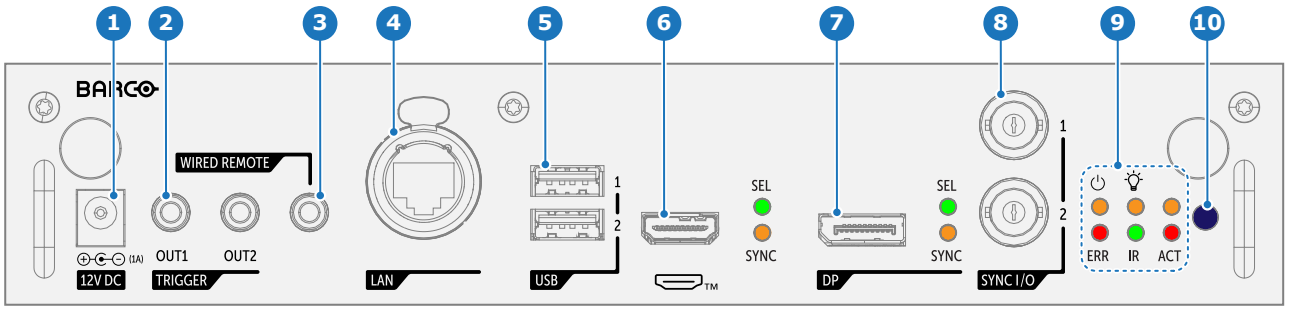

Image 6–1

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. The USB ports can also be used to insert the Pulse WiFi module (USB-dongle). 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 26).
10	IR	Infra Red receiver.

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.

6.2 Pulse Quad Combo input Mk III

Front panel Quad Combo Input Mk III

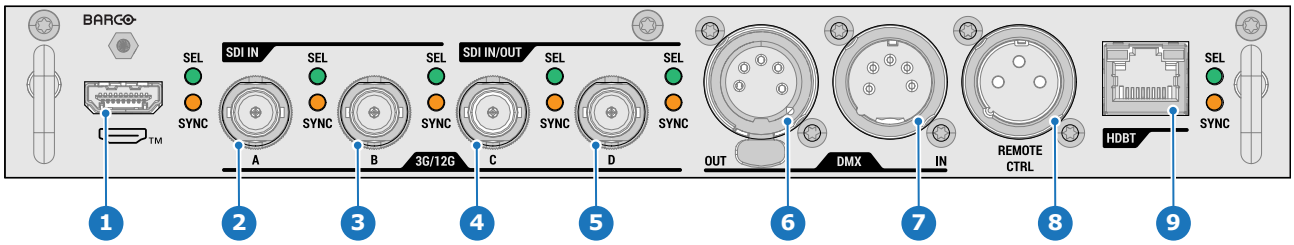

Image 6–2

1 HDMI™ input[1]
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 input
7 DMX interface output
8 XLR for wired projector control
9 HDBaseT input

HDMI™

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

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.

1. 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.

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

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 67.

6.3 Pulse Quad DP 1.2 input

Front panel Quad DP 1.2 input

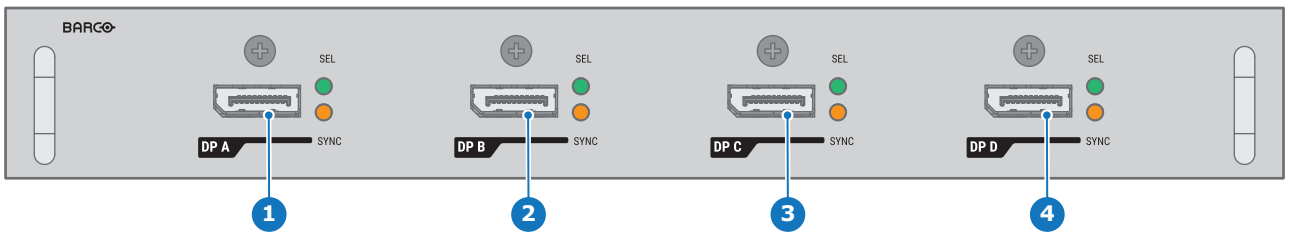

Image 6–3

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 67.

6.4 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.

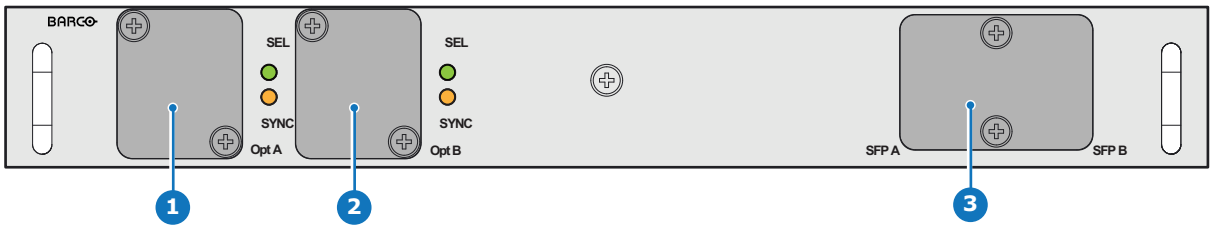

Image 6–4

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 67.

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

Projector maintenance 7

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7.2 Cleaning the lens 55
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7.6 Washing and drying the dust filters 59

7.1 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 using Pulse Prospector

1. Ensure the projector is in Ready mode.
2. Connect to Pulse Prospector of the projector.
3. Log in as Power user or higher
4. Select *Service* > *Firmware* > *Update* in the sidebar.
5. Drag and drop the projector update file in to the dotted area in the *Firmware Update* pane.

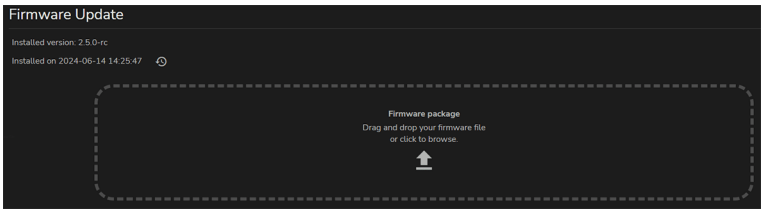

Image 7–1

Note: Do NOT turn off, power down, or remove mains power supply while the upgrade is in progress.

Note: During the firmware update, the projector will restart at some point in the process.

The firmware update process will start, and continue until finished.

For more info see the Pulse Prospector user guide.

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 compatible either with FAT32 or NTFS[2].

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.

2. NTFS is only supported from Pulse 2.5 and later.

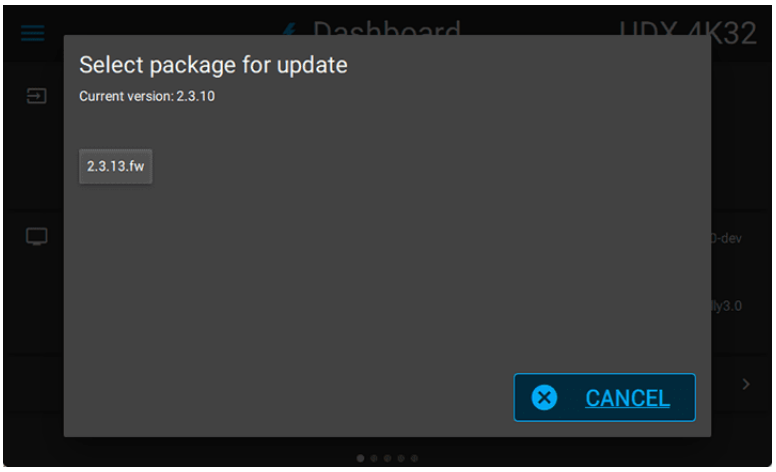

Image 7–2 Example of software packages available on the flash drive.

6. Select the desired package and confirm.

   A software update dialog will be prompted, requesting confirmation.

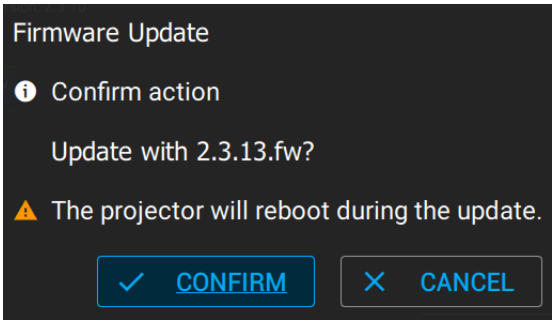

Image 7–3 Example of a Software update dialog prompt

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.

7.2 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[3]) .
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.

7.3 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.

7.4 Removing and replacing the dust filters

About the air filters

There are several air filters in the projector, on all four sides of the projector, as well as the top of the projector. There is no predetermined interval for cleaning or replace the filters, but they must be inspected on a regular basis to avoid clogging, or buildup of temperature inside the projector.

To know more about how to define the interval of checking filters, check the environmental conditions chapter in the installation manual.

Location of the filters

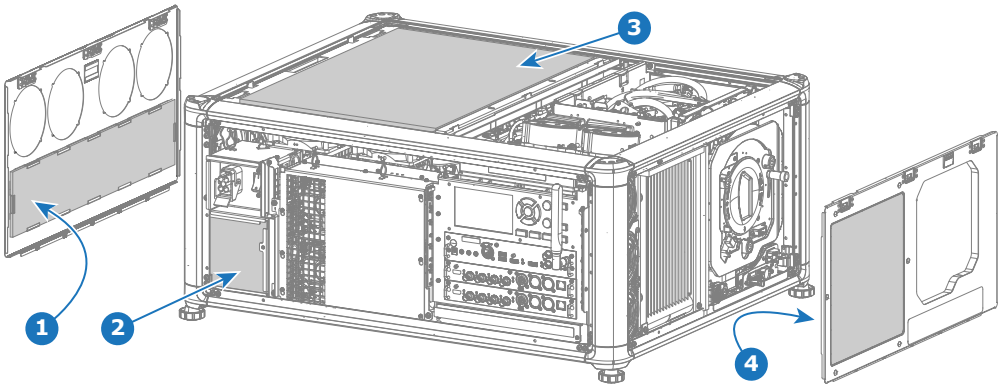

Image 7–4

1 Rear cover dust filter (foam)
2 Left LDM dust filter (foam)
3 Top dust filter (foam)
4 Front cover dust filter (foam)

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

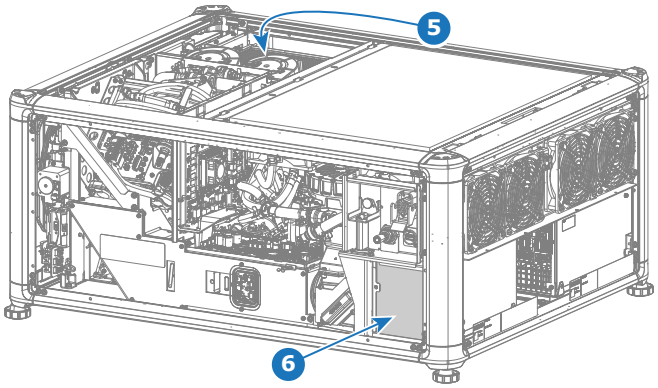

Image 7–5

5 Light processor dust filter (cellulose)
6 Left LDM dust filter (foam)

Prerequisites

Remove the appropriate side or top cover before checking or removing a filter. For more info, see chapter"Projector covers", page 61.

How to check and remove a filter

1. Do one of the following, depending on the foam type:
   a) For a foam filter, grab and remove the filter from its holder. Since the filter does not have a holder, it's easy to remove and place these back.

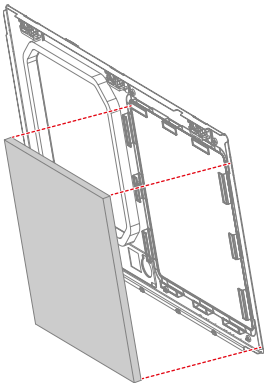

Image 7–6 Front cover dust filter

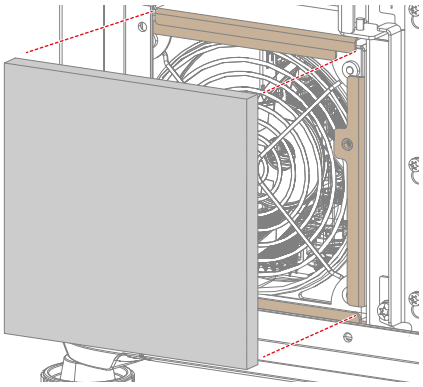

Image 7–7 Left side dust filter

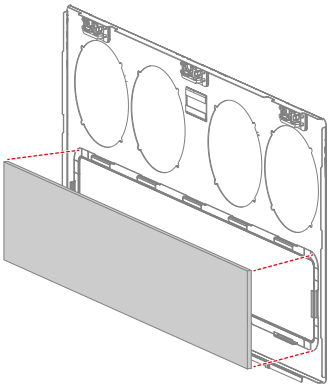

Image 7–8 Rear cover dust filter

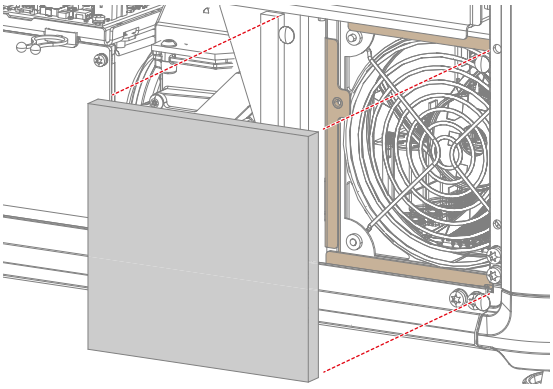

Image 7–9 Right side dust filter

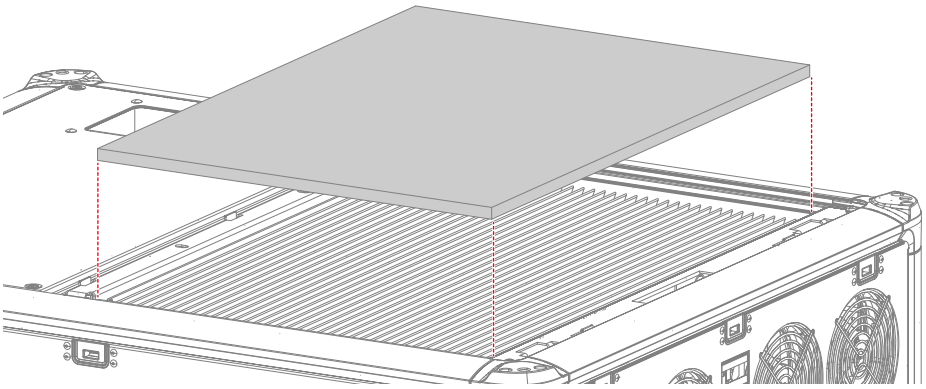

Image 7–10 Top dust cover

b) For the light processor dust filter, click it out of its holders and remover it as illustrated.

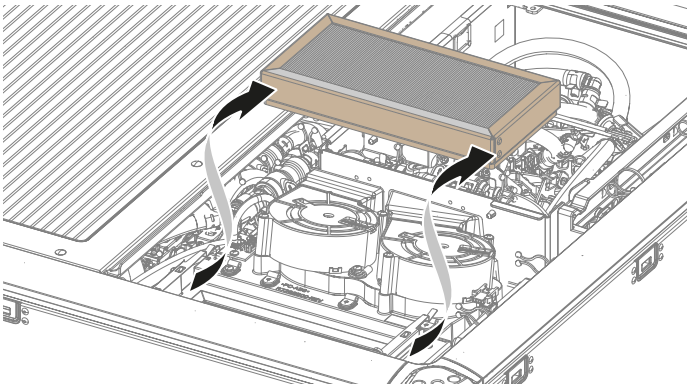

Image 7–11 Light processor dust filter

2. Check the status of the filter. Do one of the following:
   a) If the filter is clean, place it back in its holder.
   b) If the filter contains dust, vacuum clean the filter. For more info, see “Vacuum cleaning of the dust filters”, page 58.
   c) If the filter feels greasy, wash it. For more info, see “Washing and drying the dust filters”, page 59.
   d) If the filter is deteriorated or damaged, replace it.
3. Place the filter back in its holder.

   Caution: When placing back the light processor filter, pay attention to the airflow direction. Place the filter with the arrowhead facing the projector.

4. Place back any removed cover. For more info, see chapter“Projector covers”, page 61.

7.5 Vacuum cleaning of the dust filters

When to vacuum clean the dust filters?

The dust filters should be checked every month. If the filters are contaminated with dust then cleaning the filters with a vacuum cleaner should be sufficient. In case the filters feel greasy these must be washed. See cleaning procedure “Washing and drying the dust filters”, page 59.

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.

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

Required tools

Vacuum cleaner with soft brush suction nuzzle.

How to vacuum-clean the dust filter?

1. Carefully vacuum the air inlet side of the dust filter. Use a vacuum cleaner with a soft brush suction nuzzle. The air inlet side of the dust filter is the side which is surrounded with a glue edge.

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

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

Caution: Do not damage the dust filter. Replace damaged dust filters immediately.

7.6 Washing and drying the dust filters

About filter washing and drying

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

Cleansing agent

To clean sticky, greasy dust filters 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 “Hazards”, page 111.

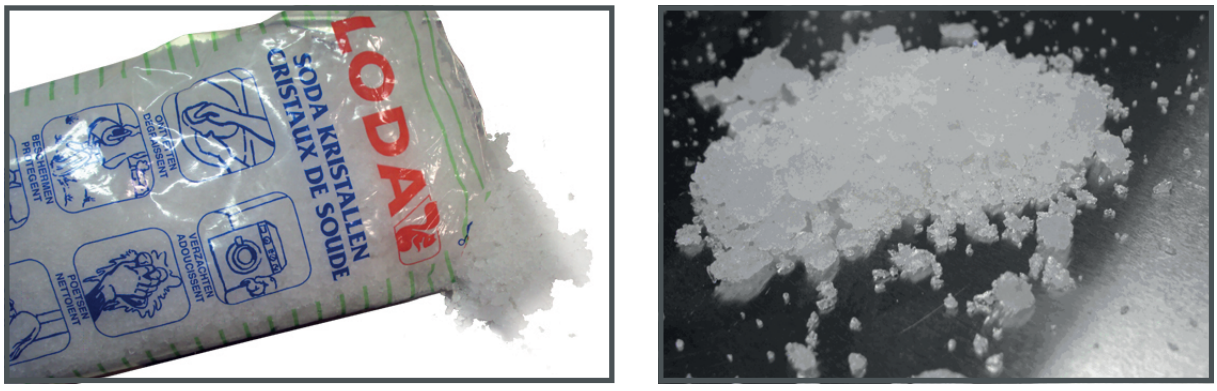

Image 7–12 Sodium carbonate crystals.

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.

Required tools

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

How to wash and dry the dust filters?

1. Make a solution with a ratio of 30 gram (a handful) sodium carbonate to 1 liter **hot water**.
2. Soak the dust filters 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 filters 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(s) to dry at 50°C max in a well ventilated room.

CAUTION: Do not install wet filters back into the projector under any circumstance. Wet filters can have serious safety consequences as well as jeopardize the internal optics of the system.

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

8 Projector covers

8.1 Cover locks 62
8.2 Removing a side, front or rear cover 62
8.3 Installing a side, front or rear cover 63
8.4 Removing the top covers 64
8.5 Installing the top covers 65

About this chapter

Most maintenance and service procedures demand removing one or more of the projector covers to gain access to the parts to maintain or to service.

The procedures in this chapter describe, with detailed step by step actions and illustrations, how to remove or install the projector covers.

8.1 Cover locks

About the cover locks

All the side covers are fastened with the same “easylock” type cover lock.

Required tools

Flat screwdriver 5 mm

Opening a cover with cover locks

1. Push down the inner side of the easylock with a screwdriver.

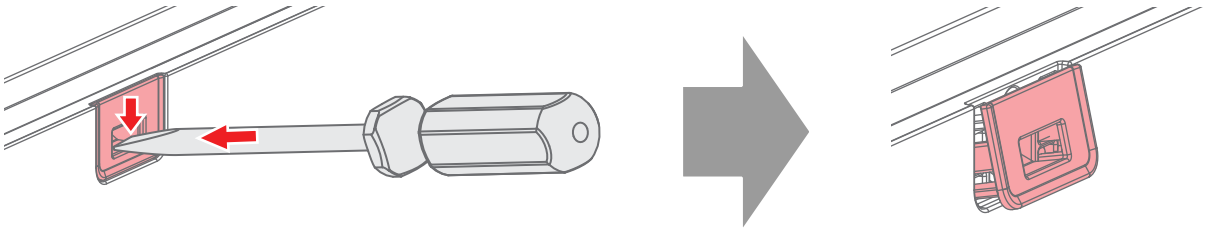

Image 8–1

As a result the lock jumps loose.

Closing a cover with cover locks

1. Ensure that the cover is in the correct position.
2. Press the easylock into the housing.

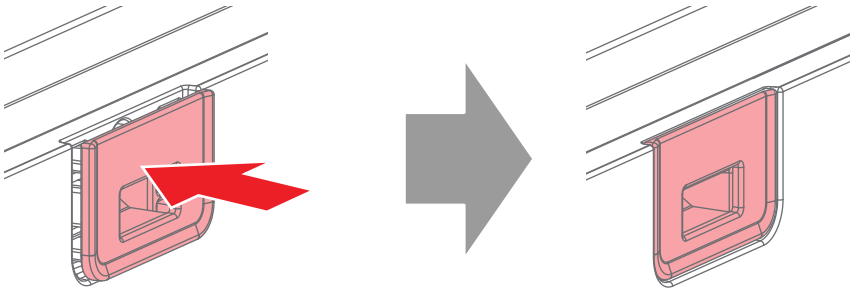

Image 8–2

8.2 Removing a side, front or rear cover

About removing a side cover

The method of removing the covers are equal for the following covers:

- Front cover
- Left side cover
- Rear cover
- Right cover

Prerequisites

Before removing a cover, make sure to do the following:

- For the front cover:
  - Remove the lens.
  - Disconnect anything connected to the front XLR connector (e.g. motorized frame, external shutter).

- For the left side cover:
  - Power off the projector.
  - Remove the mains power cord.
- For the right side cover:
  - Disconnect the motorized rigging frame connections (if installed)
  - Disconnect the external cooler connections (if installed)

Required tools

Flat screwdriver 5 mm

How to remove

1. Unlock the cover locks. For more info, see “Cover locks”, page 62.
2. Tilt the cover outwards and remove it.

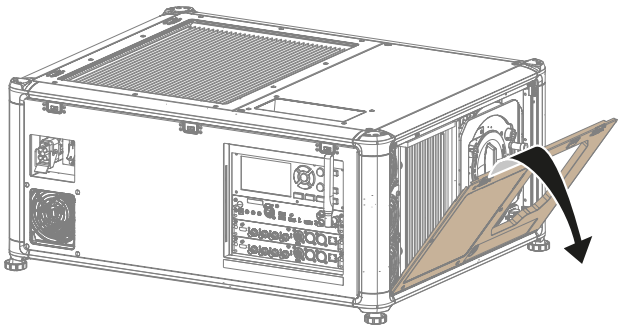

Image 8–3

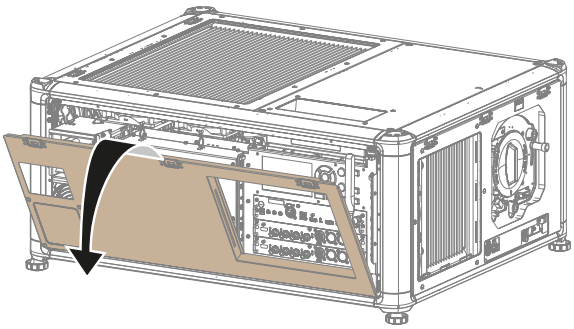

Image 8–4

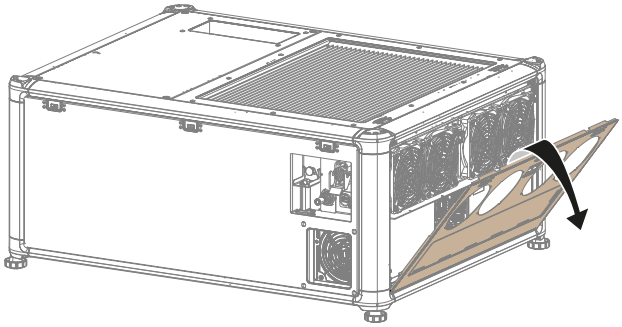

Image 8–5

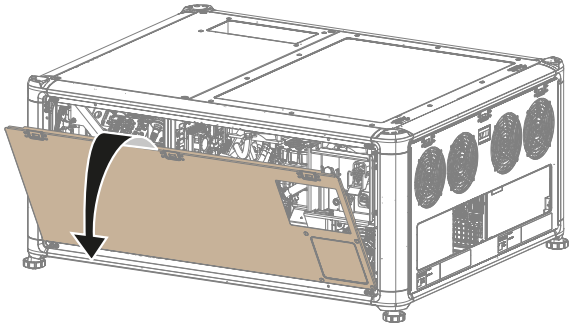

Image 8–6

8.3 Installing a side, front or rear cover

How to install

1. Place the cover onto the bottom side of the projector and tilt it inwards.

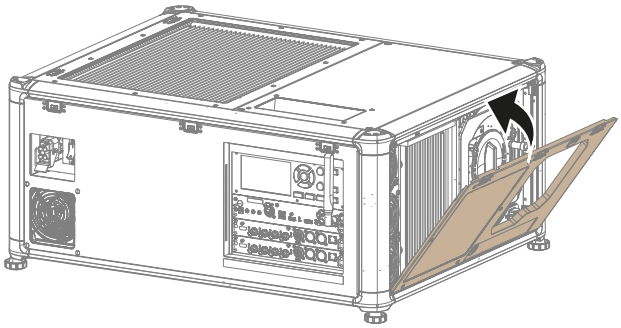

Image 8–7

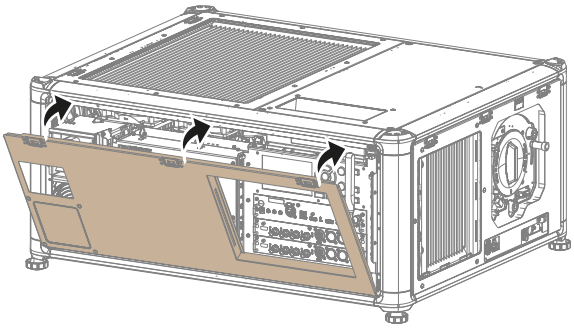

Image 8–8

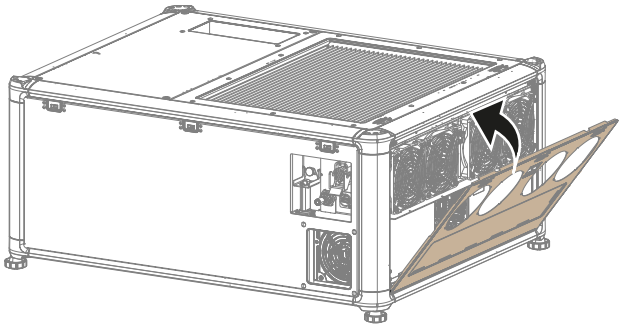

Image 8–9

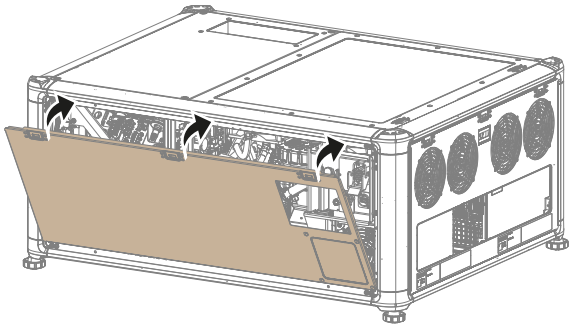

Image 8–10

2. Lock the projectors in place, using the cover locks. For more info, see “Cover locks”, page 62.

8.4 Removing the top covers

Required tools

Torx screwdriver T20

How to remove both top covers

1. Loosen the four screws of the top cover. Use a T20 Torx screwdriver.
2. Lift up and remove the cover.

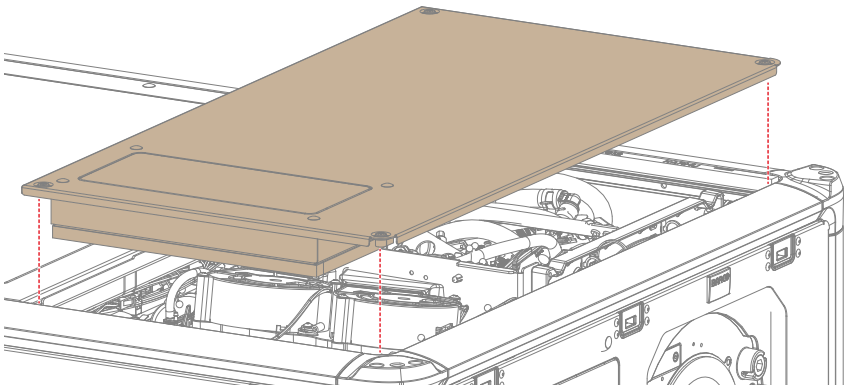

Image 8–11 Lifting up and removing the front side top cover.

3. Unlock the two cover locks at the rear top side of the projector. For more info, see “Cover locks”, page 62.
4. Lift up and remove the cover.

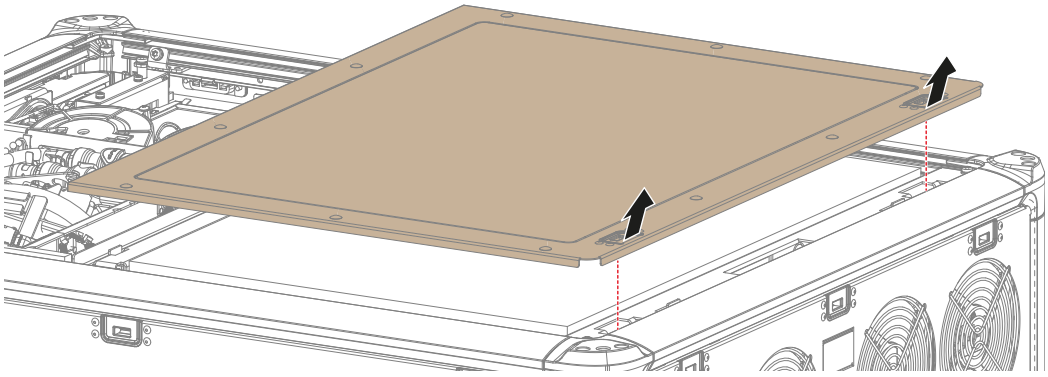

Image 8–12

8.5 Installing the top covers

Required tools

Torx screwdriver T20

How to install both top covers

1. Place the rear top cover on the projector.

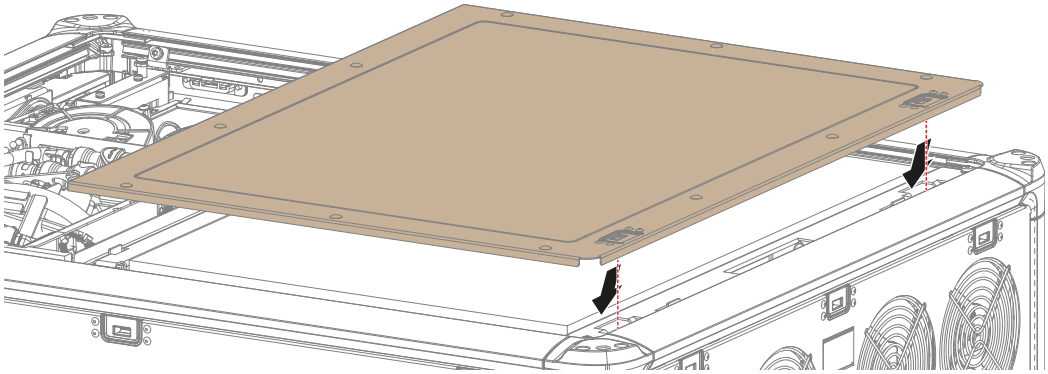

Image 8–13

2. Lock the two cover locks at the rear top side of the projector. For more info, see “Cover locks”, page 62.
3. Place the front top cover on the pojector.

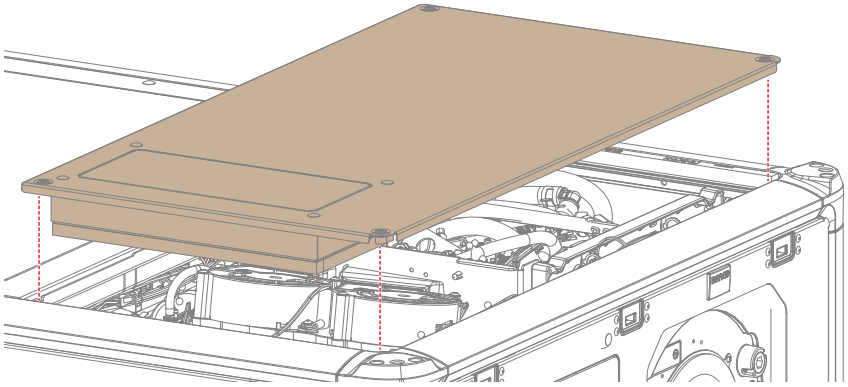

Image 8–14 Lifting up and removing the front side top cover.

4. Drive in the four screws of the top cover. Use a T20 Torx screwdriver.

Specifications

A

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A.1 Specifications QDX 4K45

Notes	The specifications in this document are preliminary
Projector type	WUXGA 3-chip DLP digital projector
Technology	0.96" DMD™ x3
Resolution	3840 x 2400 (4K UHD)
Brightness	41000 center lumens
Contrast ratio	2.200:1
Optical lens shift	Vertical: up to -150% to +130% (motorized) Horizontal: up to +/- 50% (motorized) with lens memory on TLD+ lenses
Light source	Blue+Red laser phosphor with inorganic phosphor wheel
Brightness uniformity	95%
Light source lifetime	20000 hrs (100% power, DynaBlack® off)
Color correction	Yes
Optical dowser	Laser switching /optional external
Aspect ratio	16:10
Lens type	TLD+
Lens range	TLD+: 0.37:1 ; 0.65-0.85:1 ; 0.8-1.16:1 ; 1.25 -1.6:1 ; 1.5-2.0:1 ; 2.0-2.8:1 ; 2.8-4.5:1 ; 4.5-7.5:1 ; 7.5-11.5:1
Color space	REC 709 +
Orientation	360°
Sealed DLP™ core	Standard
Inputs	HDMI™ 2.1 (HDCP2.2 - HDR10)/ DP1.2 (HDCP 1.3) RJ45 Ethernet / RS232 / USB(5v) / 12V out/ BNC 3D sync in-out
Input resolutions	Including and up to: 4096 x 2160 @ 240Hz 3840 x 2400 @ 240Hz 7680 × 4320 @ 60Hz
Processing	Pulse electronics
Web browser	Yes
Picture-by-picture	Two sources simultaneously
CLO (constant light output)	Yes
DMX 512	Yes
Image processing	Embedded warp & blend
Keystone correction	Yes
Standby power	<0,5 W
Software tools	Pulse Toolset + Android app + iOS app + IMS

Control	DMX (optional), XLR wired (optional) + IR, RJ45, Wifi (optional), GSM (optional)
3D	Active eye wear 3D stereo formats: 1xHDMI™ 1xDP or Quad DP(optioN/Al) top/ bottomsequential multi pipe. 1920x1200 @ 120Hz
24/7 operation	Yes
BTU per hour	Max 11935 BTU/h
Operating temperature	0-40°C / 32°-104°F (reduce power > 40°C)
Optional Inputs	Quad DP1.2 // Fiber SFP // HDBaseT/ HDMI™/ Quad-3G/ 12G/ DMX/ remote CTRL // HDBaseT
Storage temperature	-10°C to 60°C
Operating humidity	0-80% (no condense)
Storage humidity	5 - 90% RH
Network connection	10/100 base-T RJ-45 connection Wifi (opt)
Dimensions (WxLxH)	660 x 830 x 350 mm / 25.98 x 32.67 x 13.77 inches
Weight	79kg / 174 lbs
Shipping weight	91kg / 200 lbs
Power requirements	120-160V (reduced power)20A / 200-240V (+/- 10%) 32A 50-60Hz
Power consumption	At 230v: 3200W typical/ 3500W max At 120v: 2200W typical/ 2300W max
Noise level (typical at 25°C/ 77°F)	52dB(A)
Shipping dimensions (WxLxH)	800 x 1200 x 660 mm / 31.49 x 47.24 x 25.9 " incl. palet
Safety class	Laser Safety Class: RG3 Class 2
Standard accessories	Power cord wireless / XLR wired rugged remote control
Certifications	Compliant with UL60950-1 and EN60950-1 complies with FCC rules & regulations part 15 Class A and CE EN55032 Class A Rohs
Warranty	3 years

A.2 Specifications QDX W45

Notes	The specifications in this document are preliminary
Projector type	WUXGA 3-chip DLP digital projector
Technology	0.96" DMD™ x3
Resolution	1920 x 1200 (WUXGA)
Brightness	41000 center lumens
Contrast ratio	2.200:1
Optical lens shift	Vertical: up to -150% to +130% (motorized)

	Horizontal: up to +/- 50% (motorized) with lens memory on TLD+ lenses
Light source	Blue+Red laser phosphor with inorganic phosphor wheel
Brightness uniformity	95%
Light source lifetime	20000 hrs (100% power, DynaBlack® off)
Color correction	Yes
Optical dowser	Laser switching /optional external
Aspect ratio	16:10
Lens type	TLD+
Lens range	TLD+: 0.37:1 ; 0.65-0.85:1 ; 0.8-1.16:1 ; 1.25 -1.6:1 ; 1.5-2.0:1 ; 2.0-2.8:1 ; 2.8-4.5:1 ; 4.5-7.5:1 ; 7.5-11.5:1
Color space	REC 709 +
Orientation	360°
Sealed DLP™ core	Standard
Inputs	HDMI™ 2.1 (HDCP2.2 - HDR10)/ DP1.2 (HDCP 1.3) RJ45 Ethernet / RS232 / USB(5v) / 12V out/ BNC 3D sync in-out
Input resolutions	Including and up to: 4096 x 2160 @ 240Hz 3840 x 2400 @ 240Hz 7680 × 4320 @ 60Hz
Processing	Pulse electronics
Web browser	Yes
Picture-by-picture	Two sources simultaneously
CLO (constant light output)	Yes
DMX 512	Yes
Image processing	Embedded warp & blend
Keystone correction	Yes
Standby power	<0,5 W
Software tools	Pulse Toolset + Android app + iOS app + IMS
Control	DMX (optional), XLR wired (optional) + IR, RJ45, Wifi (optional), GSM (optional)
3D	Active eye wear 3D stereo formats: 1xHDMI™ 1xDP or Quad DP(optioN/Al) top/ bottomsequential multi pipe. 1920x1200 @ 120Hz
24/7 operation	Yes
BTU per hour	Max 11935 BTU/h
Operating temperature	0-40°C / 32°-104°F (reduce power > 40°C)
Optional Inputs	Quad DP1.2 // Fiber SFP // HDBaseT/ HDMI™/ Quad-3G/ 12G/ DMX/ remote CTRL // HDBaseT

Storage temperature	-10°C to 60°C
Operating humidity	0-80% (no condense)
Storage humidity	5 - 90% RH
Network connection	10/100 base-T RJ-45 connection Wifi (opt)
Dimensions (WxLxH)	660 x 830 x 350 mm / 25.98 x 32.67 x 13.77 inches
Weight	79kg / 174 lbs
Shipping weight	91kg / 200 lbs
Power requirements	120-160V (reduced power)20A / 200-240V (+/- 10%) 32A 50-60Hz
Power consumption	At 230v: 3200W typical/ 3500W max At 120v: 2200W typical/ 2300W max
Noise level (typical at 25°C/ 77°F)	52dB(A)
Shipping dimensions (WxLxH)	800 x 1200 x 660 mm / 31.49 x 47.24 x 25.9 " incl. palet
Safety class	Laser Safety Class: RG3 Class 2
Standard accessories	Power cord wireless / XLR wired rugged remote control
Certifications	Compliant with UL60950-1 and EN60950-1 complies with FCC rules & regulations part 15 Class A and CE EN55032 Class A Rohs
Warranty	3 years

A.3 Specifications QDX 4K35

Notes	The specifications in this document are preliminary
Projector type	WUXGA 3-chip DLP digital projector
Technology	0.96" DMD™ x3
Resolution	3840 x 2400 (4K UHD)
Brightness	33000 center lumens
Contrast ratio	2.200:1
Optical lens shift	Vertical: up to -150% to +130% (motorized) Horizontal: up to +/- 50% (motorized) with lens memory on TLD+ lenses
Light source	Blue+Red laser phosphor with inorganic phosphor wheel
Brightness uniformity	95%
Light source lifetime	20000 hrs (100% power, DynaBlack® off)
Color correction	Yes
Optical dowser	Laser switching /optional external
Aspect ratio	16:10
Lens type	TLD+

Lens range	TLD+: 0.37:1 ; 0.65-0.85:1 ; 0.8-1.16:1 ; 1.25 -1.6:1 ; 1.5-2.0:1 ; 2.0-2.8:1 ; 2.8-4.5:1 ; 4.5-7.5:1 ; 7.5-11.5:1
Color space	REC 709 +
Orientation	360°
Sealed DLP™ core	Standard
Inputs	HDMI™ 2.1 (HDCP2.2 - HDR10)/ DP1.2 (HDCP 1.3) RJ45 Ethernet / RS232 / USB(5v) / 12V out/ BNC 3D sync in-out
Input resolutions	Including and up to: 4096 x 2160 @ 240Hz 3840 x 2400 @ 240Hz 7680 × 4320 @ 60Hz
Processing	Pulse electronics
Web browser	Yes
Picture-by-picture	Two sources simultaneously
CLO (constant light output)	Yes
DMX 512	Yes
Image processing	Embedded warp & blend
Keystone correction	Yes
Standby power	<0,5 W
Software tools	Pulse Toolset + Android app + iOS app + IMS
Control	DMX (optional), XLR wired (optional) + IR, RJ45, Wifi (optional), GSM (optional)
3D	Active eye wear 3D stereo formats: 1xHDMI™ 1xDP or Quad DP(optioN/Al) top/ bottomsequential multi pipe. 1920x1200 @ 120Hz
24/7 operation	Yes
BTU per hour	Max 9584 BTU/h
Operating temperature	0-40°C / 32°-104°F (reduce power > 40°C)
Optional Inputs	Quad DP1.2 // Fiber SFP // HDBaseT/ HDMI™/ Quad-3G/ 12G/ DMX/ remote CTRL // HDBaseT
Storage temperature	-10°C to 60°C
Operating humidity	0-80% (no condense)
Storage humidity	5 - 90% RH
Network connection	10/100 base-T RJ-45 connection Wifi (opt)
Dimensions (WxLxH)	660 x 830 x 350 mm / 25.98 x 32.67 x 13.77 inches
Weight	79kg / 174 lbs
Shipping weight	91kg / 200 lbs
Power requirements	120-160V (reduced power)20A / 200-240V (+/- 10%) 32A 50-60Hz
Power consumption	At 230v: 2560W typical/ 2800W max

	At 120v: 2200W typical/ 2300W max
Noise level (typical at 25°C/ 77°F)	<52dB(A)
Shipping dimensions (WxLxH)	800 x 1200 x 660 mm / 31.49 x 47.24 x 25.9 " incl. palet
Safety class	Laser Safety Class: RG3 Class 2
Standard accessories	Power cord wireless / XLR wired rugged remote control
Certifications	Compliant with UL60950-1 and EN60950-1 complies with FCC rules & regulations part 15 Class A and CE EN55032 Class A Rohs
Warranty	3 years

A.4 Specifications QDX W35

Notes	The specifications in this document are preliminary
Projector type	WUXGA 3-chip DLP digital projector
Technology	0.96" DMD™ x3
Resolution	1920 x 1200 (WUXGA)
Brightness	33000 center lumens
Contrast ratio	2.200:1
Optical lens shift	Vertical: up to -150% to +130% (motorized) Horizontal: up to +/- 50% (motorized) with lens memory on TLD+ lenses
Light source	Blue+Red laser phosphor with inorganic phosphor wheel
Brightness uniformity	95%
Light source lifetime	20000 hrs (100% power, DynaBlack® off)
Color correction	Yes
Optical dowser	Laser switching /optional external
Aspect ratio	16:10
Lens type	TLD+
Lens range	TLD+: 0.37:1 ; 0.65-0.85:1 ; 0.8-1.16:1 ; 1.25 -1.6:1 ; 1.5-2.0:1 ; 2.0-2.8:1 ; 2.8-4.5:1 ; 4.5-7.5:1 ; 7.5-11.5:1
Color space	REC 709 +
Orientation	360°
Sealed DLP™ core	Standard
Inputs	HDMI™ 2.1 (HDCP2.2 - HDR10)/ DP1.2 (HDCP 1.3) RJ45 Ethernet / RS232 / USB(5v) / 12V out/ BNC 3D sync in-out
Input resolutions	Including and up to: 4096 x 2160 @ 240Hz 3840 x 2400 @ 240Hz

	7680 × 4320 @ 60Hz
Processing	Pulse electronics
Web browser	Yes
Picture-by-picture	Two sources simultaneously
CLO (constant light output)	Yes
DMX 512	Yes
Image processing	Embedded warp & blend
Keystone correction	Yes
Standby power	<0,5 W
Software tools	Pulse Toolset + Android app + iOS app + IMS
Control	DMX (optional), XLR wired (optional) + IR, RJ45, Wifi (optional), GSM (optional)
3D	Active eye wear 3D stereo formats: 1xHDMI™ 1xDP or Quad DP(optioN/Al) top/ bottomsequential multi pipe. 1920x1200 @ 120Hz
24/7 operation	Yes
BTU per hour	Max 9584 BTU/h
Operating temperature	0-40°C / 32°-104°F (reduce power > 40°C)
Optional Inputs	Quad DP1.2 // Fiber SFP // HDBaseT/ HDMI™/ Quad-3G/ 12G/ DMX/ remote CTRL // HDBaseT
Storage temperature	-10°C to 60°C
Operating humidity	0-80% (no condense)
Storage humidity	5 - 90% RH
Network connection	10/100 base-T RJ-45 connection Wifi (opt)
Dimensions (WxLxH)	660 x 830 x 350 mm / 25.98 x 32.67 x 13.77 inches
Weight	79kg / 174 lbs
Shipping weight	91kg / 200 lbs
Power requirements	120-160V (reduced power)20A / 200-240V (+/- 10%) 32A 50-60Hz
Power consumption	At 230v: 2560W typical/ 2800W max At 120v: 2200W typical/ 2300W max
Noise level (typical at 25°C/ 77°F)	<52dB(A)
Shipping dimensions (WxLxH)	800 x 1200 x 660 mm / 31.49 x 47.24 x 25.9 " incl. palet
Safety class	Laser Safety Class: RG3 Class 2
Standard accessories	Power cord wireless / XLR wired rugged remote control

Certifications	Compliant with UL60950-1 and EN60950-1 complies with FCC rules & regulations part 15 Class A and CE EN55032 Class A Rohs
Warranty	3 years

A.5 Specifications SDI inputs

For readability, the video timings listed are summarized. For the full list of video timings, refer to the appendices.

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.

SDI specifications

Specification	Value		
Color space	YCbCr		
Color depth	10 bpc		
Chroma sampling	4:2:2		
Audio	not supported		
For future release	• 3D support • Interlaced support • Segmented frame support		
Video timings progressive[4]	**Type**	**Port type**	**Format**
	HD-SDI	Single link Quad link	• Up to 1920 x 1080 @24 Hz • Up to 1920 x 1080 @25 Hz • Up to 1920 x 1080 @30 Hz • Up to 1280 x 720 @50 Hz • Up to 1280 x 720 @60 Hz
	3G-SDI Level A	Single link Quad link	Up to 2048 x 1080 @50 Hz Up to 2048 x 1080 @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.6 Specifications HDMI inputs

For readability, the video timings listed are summarized. For the full list of video timings, refer to the appendices.

4. For the full list of video timings, see Appendix user guide

HDMI specifications

Specification	Value
Pixel rate	25 – 600 MHz pixel clock
HDCP support	• HDCP 1.x • HDCP 2.2 • RGB 4:4:4
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 • 48 bpp
3D support	• Field sequential 3D (Active 3D) - Frame-packed - Top Bottom progressive - Side-by-side progressive • Passive 3D **not** supported.
For future release	• Interlaced support
Audio	Not supported
Video timings[4]	• Up to 4096 x 2160 @24 Hz • Up to 4096 x 2160 @25 Hz • Up to 4096 x 2160 @30 Hz • Up to 2048 x 1080 @48 Hz • Up to 4096 x 2160 @50 Hz • Up to 4096 x 2160 @60 Hz
Native video timings	• W models: 1920 x 1200 @60 Hz • 4k models: 3840 x 2160 @60 Hz • N4k models: 4096 x 2160 @60 Hz

A.7 Specifications HDBaseT input

For readability, the video timings listed are summarized. For the full list of video timings, refer to the appendices.

HDBaseT specifications

Specification	Value
Pixel rate	25 – 297 MHz pixel clock
Color space	• YCbCr 4:2:2 • YCbCr 4:4:4 • RGB 4:4:4
Color depth	• 24 bpp • 30 bpp • 36 bpp • 48 bpp
HDCP support	HDCP 1.x supported

Specification	Value	
Network support	No longer supported	
For future release	• 3D support • Interlaced support	
Not supported	• Audio • Power over HDBaseT	
Video timings progressive[4]	**Layout mode**	**Supported formats**
	Standard layout (1x1 layout)	• Up to 4096 x 2160 @24 Hz • Up to 4096 x 2160 @25 Hz • Up to 4096 x 2160 @30 Hz • Up to 2048 x 1080 @48 Hz • Up to 2560 x 1600 @50 Hz • Up to 2560 x 1600 @60 Hz
	2 Column mode (2x1 layout)	• 1920 x 2160 @50 Hz • 1920 x 2160 @60 Hz • 2048 x 2160 @50 Hz • 2048 x 2400 @60 Hz
Native video timings	• W models: 1920 x 1200 @60 Hz • 4k models: 3840 x 2160 @60 Hz • N4k models: 4096 x 2160 @60 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-6 cables 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.8 Specifications DisplayPort 1.4 inputs

For readability, the video timings listed are summarized. For the full list of video timings, refer to the appendices.

DisplayPort 1.4 specifications

Pixel rate	Up to 600 MHz pixel clock
Color space	• YCbCr 4:2:2 • YCbCr 4:4:4 • RGB 4:4:4
Color depth	• 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)
For future release	• Interlaced support • HDCP 1.4
Audio	not supported

3D support	• Field sequential 3D (Active 3D) • Passive stereoscopic 3D (Passive stereo) converted to active 3D		
Video timings progressive	**2D / 3D**	**Layout Mode[5]**	**Supported formats**
	2D	Standard layout (1x1 layout)	• Up to 4096 x 2160 @24 Hz • Up to 4096 x 2160 @30 Hz • Up to 2048 x 1080 @48 Hz • Up to 4096 x 2160 @50 Hz • Up to 4096 x 2160 @60 Hz • Up to 2560 x 1600 @120 Hz
	2D	2 column mode (2x1 layout)	• 1920 x 2160 @60 Hz • 1920 x 2160 @120 Hz • 1920 x 2400 @60 Hz • 2048 x 2160 @60 Hz • 2048 x 2160 @120 Hz
	2D	4 quadrant mode (2x2 layout)	• 960 x 1080 @120 Hz • 960 x 1200 @120 Hz • 1280 x 1080 @60 Hz • 1280 x 1080 @120 Hz • 1280 x 1600 @60 Hz • 1280 x 1600 @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
Native video timings	• W models: 1920 x 1200 @60 Hz • 4K models: 3840 x 2400 @60 Hz • N4K models: 4096 x 2400 @60 Hz		

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

CAUTION: In order to display high resolution images (e.g.: 3840 x 2160 @60 Hz or higher) via the DP 2.1 input, the quality of the cable must be adequate, in addition the length of the cable can also influence the performance (recommended maximum ~1.2 meter);. 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 DisplayPort 1.2 inputs

For readability, the video timings listed are summarized. For the full list of video timings, refer to the appendices.

DisplayPort 1.2 specifications

Pixel rate	Up to 600 MHz pixel clock		
Color space	• YCbCr 4:2:2 • YCbCr 4:4:4 • RGB 4:4:4		
Color depth	• 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)		
For future release	• Interlaced support • HDCP 1.4		
Audio	not supported		
3D support	• Field sequential 3D (Active 3D) • Passive stereoscopic 3D (Passive stereo) converted to active 3D		
Video timings progressive[6]	**2D / 3D**	**Layout Mode**[7]	**Supported formats**
	2D	Standard layout (1x1 layout)	• Up to 4096 x 2160 @24 Hz • Up to 4096 x 2160 @30 Hz • Up to 2048 x 1080 @48 Hz • Up to 4096 x 2160 @50 Hz • Up to 4096 x 2160 @60 Hz • Up to 2560 x 1600 @120 Hz
	2D	2 column mode (2x1 layout)	• 1920 x 2160 @60 Hz • 1920 x 2160 @120 Hz • 1920 x 2400 @60 Hz • 2048 x 2160 @60 Hz • 2048 x 2160 @120 Hz
	2D	4 quadrant mode (2x2 layout)	• 960 x 1080 @120 Hz • 960 x 1200 @120 Hz • 1280 x 1080 @60 Hz • 1280 x 1080 @120 Hz • 1280 x 1600 @60 Hz • 1280 x 1600 @120 Hz • 1920 x 1080 @120 Hz • 1920 x 1200 @120 Hz

6. For the full list of video timings, see Appendix
7. Only 1x1 layout is supported on the Quad Combo input boards. The Quad DP1.2 input supports all layout configurations.

			• 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
Native video timings	• W models: 1920 x 1200 @60 Hz • 4K models: 3840 x 2400 @60 Hz • N4K models: 4096 x 2400 @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.10 Specifications SFP inputs

For readability, the video timings listed are summarized. For the full list of video timings, refer to the appendices.

SFP specifications

Color space	YCbCr		
Color depth	10 bpc		
Chroma sampling	4:2:2		
Audio support	not supported		
Video timings progressive[8]	**Type**	**Port type**	**Format**
	HD-SDI	Single link	• Up to 1920 x 1080 @24 Hz • Up to 1920 x 1080 @25 Hz • Up to 1920 x 1080 @30 Hz • Up to 1280 x 720 @50 Hz • Up to 1280 x 720 @60 Hz • Up to 1280 x 720 @24 Hz • Up to 1280 x 720 @30 Hz

8. For the full list of video timings, see Appendix

			• Up to 1280 x 720 @25 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

Video timing tables

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About this chapter

This chapter contains the tables with video timings for video interfaces.

B.1 Overview video timings

List of compatible signals

The following table specifies the video signals that the projector can project. Barco Events projectors supports the signal with “X” in the Compatible signals column.

Note: Support for refresh rates 24.00, 30.00, 60.00 Hz automatically includes support of 1/1.001 x those refresh rates.

Resolution	Vertical refresh rate (Hz)	Compatible signal				
		HDMI 2.0 Inputs	12G SDI Input on Mk II Input board & Fiber Network Inputs	3G SDI Inputs	DisplayPort 1.2 Inputs	HDBaseT & HDMI 1.4 Inputs
640 x 480	60	X	—	—	X	X
720 x 480	60	X	—	—	—	X
720 x 576	50	X	—	—	—	X
800 x 600	60	X	—	—	X	X
1024 x 768	60	X	—	—	X	X
1280 x 720	24	—	X	X	—	—
1280 x 720	25	—	X	X	—	—
1280 x 720	30	—	X	X	—	—
1280 x 720	50	X	X	X	X	X
1280 x 720	60	X	X	X	X	X
1280 x 800	60	X	—	—	X	X
1280 x 960	60	X	—	—	X	X
1280 x 1024	60	X	—	—	X	X
1400 x 1050	60	X	—	—	X	X
1600 x 1200	60	X	—	—	X	X
1600 x 1200	120	—	—	—	X	—
1920 x 1080	24	X	X	X	X	X
1920 x 1080	25	X	X	X	—	X
1920 x 1080	30	X	X	X	—	X
1920 x 1080	50	X	X	X	X	X
1920 x 1080	60	X	X	X	X	X
1920 x 1080	120	—	—	—	X	—
1920 x 1200	50	X	X	X	X	X
1920 x 1200	60	X	X	X	X	X
1920 x 1200	120	—	—	—	X	—
2048 x 1080	24	X	—	—	X	X
2048 x 1080	25	X	—	—	X	X
2048 x 1080	30	X	—	—	X	X
2048 x 1080	48	X	—	—	X	X
2048 x 1080	50	X	X	X	X	X
2048 x 1080	60	X	X	X	X	X
2048 x 1080	120	—	—	—	X	—
2560 x 1600	50	X	—	—	X	X
2560 x 1600	60	X	—	—	X	X
2560 x 1600	120	—	—	—	X	—

Resolution	Vertical refresh rate (Hz)	Compatible signal				
		HDMI 2.0 Inputs	12G SDI Input on Mk II Input board & Fiber Network Inputs	3G SDI Inputs	DisplayPort 1.2 Inputs	HDBaseT & HDMI 1.4 Inputs
3840 x 2160	24	X	—	—	X	X
3840 x 2160	25	X	—	—	X	X
3840 x 2160	30	X	—	—	X	X
3840 x 2160	50	X	X	—	X	—
3840 x 2160	60	X	X	—	X	—
3840 x 2400	50	X	—	—	X	—
3840 x 2400	60	X	—	—	X	—
4096 x 2160	24	X	—	—	X	X
4096 x 2160	25	X	—	—	X	X
4096 x 2160	30	X	—	—	X	X
4096 x 2160	50	X	X	—	X	—
4096 x 2160	60	X	X	—	X	—

B.2 Overview video timings SDI Inputs

Overview

The following standard video formats are available for the projector.

Video timing (active pixels x active lines)	Vertical refresh rate (Hz)[9]	Type	Port Type
1280 x 720	24	HD-SDI	Single Link & Quad Link
1280 x 720	25	HD-SDI	Single Link & Quad Link
1280 x 720	30	HD-SDI	Single Link & Quad Link
1280 x 720	50	HD-SDI	Single Link & Quad Link
1280 x 720	60	HD-SDI	Single Link & Quad Link
1920 x 1080	24	HD-SDI	Single Link & Quad Link
1920 x 1080	25	HD-SDI	Single Link & Quad Link
1920 x 1080	30	HD-SDI	Single Link & Quad Link
1920 x 1080	50	3G-SDI	Single Link & Quad Link
1920 x 1080	60	3G-SDI	Single Link & Quad Link
1920 x 1200	50	3G-SDI “Barco Link”	Single Link & Quad Link
1920 x 1200	59.94	3G-SDI “Barco Link”	Single Link & Quad Link
1920 x 1200	60	3G-SDI “Barco Link”	Single Link & Quad Link
2048 x 1080	50	3G-SDI	Single Link & Quad Link

9. Support for refresh rates 24.00, 30.00 and 60.00 Hz automatically includes support of 1/1.001 x those refresh rates.

Video timing (active pixels x active lines)	Vertical refresh rate (Hz)[10]	Type	Port Type
2048 x 1080	60	3G-SDI	Single Link & Quad Link
3840 x 2160	50	12G-SDI	Single Link
3840 x 2160	60	12G-SDI	Single Link
3840 x 2400	50	12G-SDI “Barco Link Ultra”	Single Link
3840 x 2400	59.94	12G-SDI “Barco Link Ultra”	Single Link
3840 x 2400	60	12G-SDI “Barco Link Ultra”	Single Link
4096 x 2160	50	12G-SDI	Single Link
4096 x 2160	60	12G-SDI	Single Link

B.3 Overview video timings HDMI 2.0 inputs

Overview

The following standard video formats are available for the projector.

Note: support for refresh rates 24.00, 30.00, 60.00 Hz automatically includes support of 1/1.001 x those refresh rates

Video timing (active pixels x active lines)	Vertical refresh rate (Hz)	3D support?
640 x 480	60	
720 x 480	60	
720 x576	50	
800 x 600	60	
1024x 768	60	
1280 x720	50	Frame packing Top – bottom
1280 x 720	60	Frame packing Top – bottom
1280 x 800	60	
1280 x 960	60	
1280 x1024	60	
1400 x 1050	60	
1600 x 1200	60	
1920 x 1080	24	Frame packing Top – bottom

10. Support for refresh rates 24.00, 30.00 and 60.00 Hz automatically includes support of 1/1.001 x those refresh rates.

Video timing (active pixels x active lines)	Vertical refresh rate (Hz)	3D support?
1920 x 1080	25	
1920 x 1080	30	
1920 x 1080	50	Side by Side (SbS) progressive
1920 x 1080	60	Side by Side (SbS) progressive
1920 x 1200	50	
1920 x 1200	60	
2048 x 1080	24	
2048 x 1080	25	
2048 x 1080	30	
2048 x 1080	48	
2048 x 1080	50	
2048 x 1080	60	
2560 x 1600	50	
2560 x 1600	60	
3840 x 2160	24	
3840 x 2160	25	
3840 x 2160	30	
3840 x 2160	50	
3840 x 2160	60	
3840 x 2400	50	
3840 x 2400	60	
4096 x 2160	24	
4096 x 2160	25	
4096 x 2160	30	
4096 x 2160	50	
4096 x 2160	60	

B.4 Overview video timings DisplayPort 1.2 inputs

Overview

The following standard video formats are available for the projector.

Note: support for refresh rates 24.00, 30.00, 60.00 Hz automatically includes support of 1/1.001 x those refresh rates

Video timing (active pixels x active lines)	Vertical refresh rate (Hz)	Available layout modes, other than standard layout (1 x 1 layout)[11]	Support for 3D?
640 x 480	60		
800 x 600	60		
960 x 1080	120	4 Quadrant mode (2 x 2 layout)	Active 3D
960 x 1200	120	4 Quadrant mode (2 x 2 layout)	Active 3D
960 x 2160	120	4 Column mode (4 x 1 layout)	Active 3D
960 x 2400	120	4 Column mode (4 x 1 layout)	Active 3D
1024x 768	60		
1024 x 2160	60	4 Column mode (4 x 1 layout)	
1024 x 2160	120	4 Column mode (4 x 1 layout)	Active 3D
1280 x720	50		
1280 x 720	60		
1280 x 800	60		
1280 x 960	60		
1280 x1024	60		
1280 x 1080	60	4 Quadrant mode (2 x 2 layout)	
1280 x 1080	120	4 Quadrant mode (2 x 2 layout)	Active 3D
1280 x 1600	60	4 Quadrant mode (2 x 2 layout)	
1280 x 1600	120	4 Quadrant mode (2 x 2 layout)	Active 3D
1400 x 1050	60		
1600 x 1200	60		
1600 x 1200	120		Active 3D
1920 x 1080	50		
1920 x 1080	60		
1920 x 1080	120	4 Quadrant mode (2 x 2 layout)	Active 3D
1920 x 1200	50		
1920 x 1200	60		

11. Other layout modes are only available on Input boards that have multiple DP inputs.

Video timing (active pixels x active lines)	Vertical refresh rate (Hz)	Available layout modes, other than standard layout (1 x 1 layout)[12]	Support for 3D?
1920 x 1200	120	4 Quadrant mode (2 x 2 layout)	Active 3D
1920 x 2160	60	2 Column mode (2 x 1 layout)	Passive stereo
1920 x 2160	120	2 Column mode (2 x 1 layout)	Active 3D
1920 x 2400	60	2 Column mode (2 x 1 layout)	
2048 x 1080	24		
2048 x 1080	25		
2048 x 1080	30		
2048 x 1080	48		
2048 x 1080	50		
2048 x 1080	60		
2048 x 1080	120	4 Quadrant mode (2 x 2 layout)	Active 3D
2048 x 2160	60	2 Column mode (2 x 1 layout)	
2048 x 2160	120	2 Column mode (2 x 1 layout)	Active 3D
2560 x 1080	120		Active 3D
2560 x 1440	120		Active 3D
2560 x 1600	50		
2560 x 1600	60		
2560 x 1600	120		
3840 x 2160	24		
3840 x 2160	25		
3840 x 2160	30		
3840 x 2160	50		
3840 x 2160	60		Passive Stereo
3840 x 2400	50		
3840 x 2400	60		
4096 x 2160	24		
4096 x 2160	25		
4096 x 2160	30		
4096 x 2160	50		
4096 x 2160	60		

12. Other layout modes are only available on Input boards that have multiple DP inputs.

B.5 Overview video timings HDBaseT inputs

Overview

The following standard video formats are available for the projector.

Note: support for refresh rates 24.00, 30.00, 60.00 Hz automatically includes support of 1/1.001 x those refresh rates.

Video timing (active pixels x active lines)	Vertical refresh rate (Hz)
640 x 480	60
720 x 480	60
720 x576	50
800 x 600	60
1024x 768	60
1280 x720	50
1280 x 720	60
1280 x 800	60
1280 x 960	60
1280 x1024	60
1400 x 1050	60
1600 x 1200	60
1920 x 1080	24
1920 x 1080	25
1920 x 1080	30
1920 x 1080	50
1920 x 1080	60
1920 x 1200	50
1920 x 1200	60
1920 x 2160	50
1920 x 2160	60
2048 x 1080	24
2048 x 1080	25
2048 x 1080	30
2048 x 1080	48
2048 x 1080	50
2048 x 1080	60
2048 x 2160	50
2048 x 2160	60
2560 x 1600	50
2560 x 1600	60
3840 x 2160	24

Video timing (active pixels x active lines)	Vertical refresh rate (Hz)
3840 x 2160	25
3840 x 2160	30
4096 x 2160	24
4096 x 2160	25
4096 x 2160	30

DMX chart

C

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C.3 DMX chart, Extended 95

C.1 DMX chart input board positioning

About the input boards

6 Input selection ranges are reserved in the DMX chart per input board location (named L1 and L2). With the current version of DMX support, it is important to take into account to keep the input boards in their original slots.

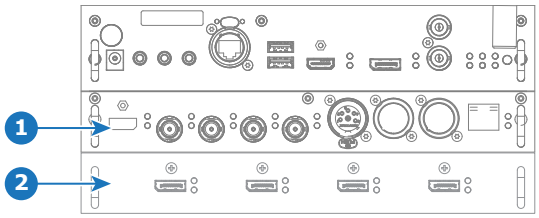

Image C–1

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

C.2 DMX chart, Basic

Overview

Ch.	Function	Value	Default	Action
1	Shutter + Intensity	0 - 7	255	Close shutter
		8 - 255		Adjust intensity
2	Function select	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 input 1: HDMI Input (If held for 1 second)[13]
		96 - 103		Select input 2: DisplayPort Input (If held for 1 second)[13]
		104 - 111		Select input 3: SDI Input A (If held for 1 second)[13]
		112 - 119		Select input 4: SDI Input B (If held for 1 second)[13]
		120 - 127		Select input 5: HDBaseT Input 1 (if held for 1 second)[13]
		128 - 135		Select input 6: Quad SDI input (if held for 1 second)[13]
		136 - 143		Select input 7: Quad DP board Input A (if held for 1 second) [14]
		144 - 151		Select input 8: Quad DP board Input B (if held for 1 second)[14]

13. Only when the Quad Combo input board is installed in slot L1
14. Only when the Quad DisplayPort input board is installed in slot L2

Ch.	Function	Value	Default	Action
		152 - 159		Select input 9: Quad DP board Input C (if held for 1 second)[14]
		160 - 167		Select input 10: Quad DP board Input D (if held for 1 second)[14]
		168 - 175		Select input 11: Quad DP board Inputs A-B (if held for 1 second) [14]
		176 - 183		Select input 12: Quad DP board quad column mode (if held for 1 second)[14]
		184 - 207		Reserved for future functionality
		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

C.3 DMX chart, Extended

Overview on F40, F70, F80, Bragi, Balder and Medea

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	Input selection	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 input 1: HDMI Input (If held for 1 second)[13]
		96 - 103		Select input 2: DisplayPort Input (If held for 1 second)[13]
		104 - 111		Select input 3: SDI Input A (If held for 1 second)[13]
		112 - 119		Select input 4: SDI Input B (If held for 1 second)[13]
		120 - 127		Select input 5: HDBaseT Input 1 (if held for 1 second)[13]
		128 - 135		Select input 6: Quad SDI input (if held for 1 second)[13]
		136 - 143		Select input 7: Quad DP board Input A (if held for 1 second) [14]
		144 - 151		Select input 8: Quad DP board Input B (if held for 1 second)[14]

Ch.	Function	Value	Default	Actions
		152 - 159		Select input 9: Quad DP board Input C (if held for 1 second)[14]
		160 - 167		Select input 10: Quad DP board Input D (if held for 1 second)[14]
		168 - 175		Select input 11: Quad DP board Inputs A-B (if held for 1 second) [14]
		176 - 183		Select input 12: Quad DP board quad column mode (if held for 1 second)[14]
		184 - 255		Reserved for future functionality
5	Focus (MSB)	0 - 255	128	Set coarse lens focus adjustment[15]
6	Focus (LSB)	0 - 255	128	Set fine lens focus adjustment[17]
7	Zoom (MSB)	0 - 255	128	Set coarse lens zoom adjustment[17]
8	Zoom (LSB)	0 - 255	128	Set fine lens zoom adjustment[17]
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
13	Light Source Power[16]	0 - 3	0	Set light source to 100%
		4 - 7		Set light source to 95%
		8 - 11		Set light source to 90%
		12 - 15		Set light source to 85%
		16 - 20		Set light source to 80%
		21 - 23		Set light source to 75%
		24 - 27		Set light source to 70%
		28 - 31		Set light source to 65%
		32 - 35		Set light source to 60%
		36 - 39		Set light source to 55%
		40 - 43		Set light source to 50%
		44 - 47		Set light source to 45%
		48 - 51		Set light source to 40%
		52 - 55		Set light source to 35%
		56 - 59		Set light source to 30%
		60 - 63		Set light source to 25%
		64 - 67		Set light source to 20%
		68 - 71		Set light source to 15%
		72 - 75		Set light source to 10%
		76 - 79		Set light source to 5%

15. Only when lens has been calibrated
16. 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
		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	Various	0 - 7	0	Reserved for future 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 - 255		Reserved for future functionality

Overview on UDX, UDM, Njord and Hodr

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	Input selection	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 input 1: HDMI Input (If held for 1 second)[13]
		96 - 103		Select input 2: DisplayPort Input (If held for 1 second)[13]
		104 - 111		Select input 3: SDI Input A (If held for 1 second)[13]
		112 - 119		Select input 4: SDI Input B (If held for 1 second)[13]
		120 - 127		Select input 5: HDBaseT Input 1 (if held for 1 second)[13]
		128 - 135		Select input 6: Quad SDI input (if held for 1 second)[13]
		136 - 143		Select input 7: Quad DP board Input A (if held for 1 second) [14]
		144 - 151		Select input 8: Quad DP board Input B (if held for 1 second)[14]
		152 - 159		Select input 9: Quad DP board Input C (if held for 1 second)[14]
		160 - 167		Select input 10: Quad DP board Input D (if held for 1 second)[14]

Ch.	Function	Value	Default	Actions
		168 - 175		Select input 11: Quad DP board Inputs A-B (if held for 1 second) [14]
		176 - 183		Select input 12: Quad DP board quad column mode (if held for 1 second)[14]
		184 - 255		Reserved for future functionality
5	Focus (MSB)	0 - 255	128	Set coarse lens focus adjustment[17]
6	Focus (LSB)	0 - 255	128	Set fine lens focus adjustment[17]
7	Zoom (MSB)	0 - 255	128	Set coarse lens zoom adjustment[17]
8	Zoom (LSB)	0 - 255	128	Set fine lens zoom adjustment[17]
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
13	Light Source Power[18]	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	Various	0 - 7	0	Reserved for future 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 - 255		Reserved for future functionality

17. Only when lens has been calibrated
18. If the Light Source is forced to an output below its minimum value, it will remain at its minimum output value

PJLink commands

D

D.1 PJLink Command list 100

D.1 PJLink Command list

Supported PJLink Commands

Com-mand	Description	Remarks
POWR	Power control	Parameters: • Power on = Switch projector to ON mode • Power off = - When projector is in ON mode, go to Ready mode. - When projector is in READY mode, go to (Eco) Standby. - When projector is in READY mode and (Eco) Standby mode is disabled, remain in READY mode.
INPT	Switch source	Parameters: • Instruction to switch input to RGB (class 1) is not supported • Instruction to switch input to RGB (class 2) is not supported • Instruction to switch input to Video (class 1) is not supported • Instruction to switch input to Video (class 2) is not supported • Instruction to switch input to Storage (class 2) is not supported • Instruction to switch input to Network (class 2) is not supported • Instruction to switch input to Internal (class 2) is not supported • Instruction to switch input to Digital (Class 1) is only available when the projector is in ON or READY mode. • Instruction to switch input to Storage (Class 1) is only available when the projector is in ON or READY mode. • Instruction to switch input to Network (Class 1) is only available when the projector is in ON or READY mode. • Instruction to switch input to Digital (Class 2) is only available when the projector is in ON or READY mode. **Remark for PJLink Class 1 only**: The PJLink 1.0 specification only defines 9 digital inputs. Barco projectors can have more than 9 digital inputs. For this reason, the storage and network categories are used to host the remaining digital sources. This will result in the following: • Source 01 - 09 = PJLink input 31 - 39 • Source 10 - 18 = PJLink input 41 - 49 • Source 19 - 27 = PJLink input 51 - 59 **Note**: The projector sources are defined by numbers instead of names. This is because the exact source depends on the input cards used and their position in the Input and Communication unit. The first source will correspondend with the first item in the list provided by the command “image.source.list”.
AVMT	Mute audio and/or video	Parameters: • Video mute = ON >> Shutter closes • Video mute = OFF >> Shutter opens • Audio mute is not supported • Audio & video mute is not supported **Note**: Command is only available when projector is in ON or READY mode.
SVOL	Adjust Speaker volume	Command not supported
MVOL	Adjust microphone volume	Command not supported
FREZ	Freeze the screen	Command not supported

Com-mand	Description	Remarks
POWR?	Get power status	Parameters: • Power on = projector is in ON mode • Power off = projector is either in READY, STANDBY or ECO STANDBY mode. • Cooling status = projector is in the deconditioning status • Warmup status = projector is in the conditioning status
INPT ?	Get current source	
AVMT ?	Get the audio/video mute status	Parameters: • Video mute on >> Shutter closes • Video mute off >> Shutter opens • Audio mute is not supported • Audio & video mute is not supported **Note**: Command is only available when projector is in ON or READY mode.
ERST ?	Get error status	Only “other errors” as a parameter is supported.
LAMP ?	Get status of the lamp	Command not supported
INST ?	Get list of input sources	
NAME ?	Get projector name	The result is the projector Hostname
INF1 ?	Get manufacturer of the projector	The result is: “Barco”
INF2 ?	Get product name	Identification property of the DeviceIdentification file
INFO ?	Get other info	Command not supported
CLSS ?	Get PJlink class	The result is “2”
SNUM ?	Get serial number	
SVER ?	Get software version	
INMM ?	Get name of the input sources	
IRES ?	Get input resolution	Only supported with single source selection. Not supported when stitched connections are used.
RRES ?	Get recommended resolution	
FILT ?	Get wear counter of filer	Command not supported
RLMP ?	Get lamp replacement model number	Command not supported
RFIL ?	Get filter replacement model number	Command not supported
FREZ ?	Get status of the freeze control function	Command not supported

Regulatory

E

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E.1 Contact information

Contact address

Barco NV
Beneluxpark 21, 8500 Kortrijk, Belgium
www.barco.com

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, www.barco.com.

Manufacturer

Registered office: Barco NV
President Kennedypark 35, 8500 Kortrijk, Belgium

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

E.2 Production information

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.

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

E.3 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.

E.4 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

E.5 Product compliance US

Regulatory information for US and Canada can be accessed in the OSD of the projector. In order access it, select *Settings* >> *Regulatory information* >> *Country*.

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

FCC Interference Statement regarding the Pulse 4G module

You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

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 in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to

radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation of the device.

FCC RF Radiation Exposure Statement:

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. This equipment complies with RF radiation exposure limits set forth for an uncontrolled environment.
   This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

E.6 Product compliance Canada

Regulatory information for US and Canada can be accessed in the OSD of the projector. In order access it, select *Settings* >> *Regulatory information* >> *Country*.

Radio Frequency (RF) exposure information

This equipment (IC 23575-R8767900X) complies with IC radiation exposure limits set forth for an uncontrolled environment.

This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

Industry Canada statement

This device complies with Industry Canada's license-exempt RSSs

Operation is subject to the following two conditions:

1. this device may not cause interference, and
2. this device must accept any interference, including interference that may cause undesired operation of the device.

Operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems. For the frequency 5600-5650 MHz, no operation is permitted".

Industry Canada class A emission compliance statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Canadian ICES-003.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Informations concernant l’exposition aux fréquences radio (RF)

Cet équipement (IC 23575-R8767900X) est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé.

Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

Avis d’industrie Canada

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes:

1. l'appareil ne doit pas produire de brouillage, et
2. l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

La bande 5 150-5 250 MHz est réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux.

Pour la fréquence 5600-5650 MHz, aucune opération est autorisée

Avis de conformité a la réglementation d'Industrie Canada

Cet appareil numérique de la classe A est conforme a la norme NMB-003 du Canada.

E.7 Product compliance Turkey

Turkey RoHS compliance

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

E.8 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).

E.9 Product compliance China

中国大陆 RoHS (Information for China ROHS compliance)

根据中国大陆《电器电子产品有害物质限制使用管理办法》（也称为中国大陆RoHS），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。

According to the “Management Methods for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products” (Also called RoHS of Chinese Mainland), the table below lists the names and contents of toxic and/or hazardous substances that Barco’s product may contain.

零件项目(名称) Component name	有毒有害物质或元素 Hazardous substances and elements					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr6+)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印制电路配件 Printed Circuit Assemblies	X	O	O	O	O	O
外接电(线)缆 External cables	X	O	O	O	O	O
内部线路 Internal wiring	X	O	O	O	O	O
镜头支架 Lens holder	X	O	O	O	O	O
光学镜头 Optical lenses	X	O	O	O	O	O
螺帽,螺钉(栓),螺旋(钉),垫圈, 紧固件 Nuts, bolts, screws, washers, fasteners	X	O	O	O	O	O
激光发生器 Laser	X	O	O	O	O	O
电源供应器 Power Supply Unit	X	O	O	O	O	O
风扇 Fan	X	O	O	O	O	O
附電池遙控器 Remote control	X	O	O	O	O	O
泵 Pump	X	O	O	O	O	O

本表格依据SJ/T 11364的规定编制

This table is prepared in accordance with the provisions of SJ/T 11364.

O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 GB/T 26572 标准规定的限量要求以下.

O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in GB/T 26572.

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 标准规定的限量要求.

X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in GB/T 26572.

在中国大陆销售的相应电子信息产品（EIP）都必须遵照中国大陆《电子电气产品有害物质限制使用标识要求》标准贴上环保使用期限（EFUP）标签。Barco产品所采用的EFUP标签（请参阅实例，徽标内部的编号使用于指定产品）基于中国大陆的《电子信息产品环保使用期限通则》标准。

All Electronic Information Products (EIP) that are sold within Chinese Mainland must comply with the “Marking for the restriction of the use of hazardous substances in electrical and electronic product” of Chinese Mainland, marked with the Environmental Friendly Use Period (EFUP) logo. The number inside the EFUP logo that Barco uses (please refer to the photo) is based on the “General guidelines of environment-friendly use period of electronic information products” of Chinese Mainland.

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。

E.10 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

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）: QDX **Equipment name: Projector, Type designation: QDX**						
	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)**
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	—	○	○	○	○	○

設備名稱： 投影機， 型號（型式）： QDX Equipment name: Projector, Type designation: QDX						
	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)
激光發生器 Laser	—	○	○	○	○	○
電源供應器 Power Supply Unit	—	○	○	○	○	○
風扇 Fan	—	○	○	○	○	○
遙控器 Remote Control	—	○	○	○	○	○
泵 Pump	—	○	○	○	○	○

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.

E.11 Product compliance Korea

KCC 인증

기기명칭: 특정소출력무선기기(무선랜을 포함한 무선접속시스템용 무선기기)
인증자상호: Barco N.V.
모델명: eBox Pulse
인증번호: R-C-BVY-eBoxPulse
모듈 ID: KCC-CRM-TCS-HE910-D
제조연월: 2019.
제조자/제조국: Barco NV/벨기에와 중국

EMC 경고:
이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서
가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.

E.12 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™

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PJLink™

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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.

E.13 Hazards

Safety notice Sodium Carbonate (Na_2CO_3)

According to the Safety Data Sheet (SDS), Sodium Carbonate could cause serious eye irritation.

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.

E.14 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

User names and IP addresses are captured for general secure operation of the product.

Data retention mechanism

An administrator should modify or delete a user (upon user request, or when the user doesn't 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 can't be deleted by the user. The user can send a request to dataprotection@barco.com.

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.

List of tools

Bucket with hot water
Clean cotton cloth
Clean micro fiber lens cleaning cloth (e.g. Toraysee® cloth(s))
Compressed air
Flat screwdriver 5 mm
Lens cleaner (e.g. Zeiss lens cleaner, Purosol® or any water based lens cleaner)
Scissors or knife cutter
Sodium carbonate, 30 gram (handful) per liter hot water
Torx screwdriver T20
USB flash drive
Vacuum cleaner with soft brush suction nuzzle.

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