XDX

Installation manual

ENABLING BRIGHT OUTCOMES

BARCO

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Changes

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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

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1 Safety

About this chapter

Read this chapter attentively. It contains important information to prevent personal injury while installing and using your XDX projector. Furthermore, it includes several cautions to prevent damage to your XDX projector. Ensure that you understand and follow all safety guidelines, safety instructions and warnings mentioned in this chapter before installing and using the XDX projector. After this chapter, additional “warnings” and “cautions” are given depending on the procedure. Read and follow these “warnings” and “cautions” as well.

Clarification of the term “XDX” used in this document

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

- XDX-4K40

Model certification name

- XDX-4K40B

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

1.1 General considerations

General safety instructions

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

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 extremely high brightness (radiance) lasers; this 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 radiance value than native laser light. Nevertheless the projected light represents 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 retinal 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 irradiance equals the maximum permissible exposure as described in the chapter “Hazard Distance”.

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

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

Restricted access location

This product may only be installed in a restricted access location. The definition of a “restricted access location" is a location for equipment where both of following applies:

- Access can only be gained by SERVICE PERSONNEL or by OPERATORS who have been instructed about the reasons for the restriction applied to the location and about the precautions that shall be taken.
- Access is through the use of the tool or lock and key, or other means of security, and is controlled by the authority responsible for the location.

Why a restricted access location: This is a RG3 product. Based on international requirements, no person is allowed to enter the projected beam within the zone between the projection lens and the related Hazard Distance (HD). This shall be physically impossible by creating sufficient separation height or by placing optional barriers. Within the restricted area operator training is considered sufficient. The applicable separation heights are discussed in “High Brightness precautions: Hazard Distance”, page 16.

Users definition

Throughout this manual, the terms SERVICE PERSONNEL and TRAINED PROJECTIONIST 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 and HIGH BRIGHTNESS PROJECTORS) in performing a task, and of measures

to minimize the potential risk to themselves or other persons. The term USER and OPERATOR refers to any person other than SERVICE PERSONNEL or TRAINED PROJECTIONISTS, AUTHORIZED to operate professional projection systems.

The TRAINED PROJECTIONISTS may only perform the maintenance task described in the User & Installation manual. All other maintenance tasks and service tasks must be performed by qualified SERVICE PERSONNEL.

The DLP Cinema Systems are intended "FOR PROFESSIONAL USE ONLY" by AUTHORIZED PERSONNEL familiar with potential hazards associated with high voltage, high intensity light beams generated by lasers. Only qualified SERVICE PERSONNEL and TRAINED PROJECTIONISTS, knowledgeable of such risks, are allowed to perform service functions inside the product enclosure.

Intended use

This projector is intended for use in event applications. Event applications are designed to establish unobstructed light projection towards the screen, avoiding beam path intrusion by audience.

1.2 Important safety instructions

To prevent the risk of electrical shock

- This projector should be operated from an AC power source. Ensure that the mains voltage and capacity matches the projector electrical ratings. If you are unable to install the AC power requirements, contact your electrician. Do not defeat the purpose of the grounding.
- Installation should be done according to the local electrical code and regulations by qualified technical personnel only.
- This product is equipped with a 5-terminal barrier strip for the connection of a power line. The projector can run on one of the following configurations, depending on what power system is available:
  - A 3W+N+PE power system (Y configuration).
  - A 3W+PE power system (Δ configuration).
  - A mono phase system with power line with a separate earth ground PE.

  If you are unable to install the AC power requirements, contact your electrician. Do not defeat the purpose of the grounding.
- This product is equipped with a 2-terminal barrier strip for the connection of a UPS power cord (2-pole, 3-wire grounding).
- The electronics of the projector (UPS INLET) must be powered from a suitable UPS unit. The building has to be provided with a circuit breaker of max 16A to protect the UPS.
- The building installation has to be provided with a circuit breaker of max 40A to protect the complete unit.
- The circuit breakers are considered as readily accessible disconnect devices that must be incorporated externally to the equipment for removal of the power to the projector mains terminals and UPS inlet terminals.
- The cross-sectional area of the conductors in the power supply cord should be not less than 4 mm² (10 AWG) while using a circuit breaker of 40A max. The power cord should have a rating depending on what power system is available:
  - Y configuration: min 500V.
  - Δ configuration: min 300V.
  - Mono phase configuration: min 300V.
- The cross-sectional area of the UPS inlet cord shall be not less than 1.5 mm² (14 AWG) and has a rating of minimum 300V.
- In case of using a circuit breaker of a current rating less than 40A, the cross-sectional area of the conductors in the power supply cord must comply with the local electrical code regulations where the projector is installed.
- The cable gland of the power supply cord has a clamping range between 11 mm and 21 mm (cable diameter of the power supply cord must be in this range :11-21 mm)
- Disconnect the power to the projector mains terminals for removal of all power from the projector.
- Do not allow anything to rest on the power cord. Do not locate this projector where persons will walk on the cord.
- Do not operate the projector with a damaged cord or if the projector has been dropped or damaged - until it has been examined and approved for operation by a qualified service technician.
- Position the cord so that it will not be tripped over, pulled, or contact hot surfaces.
- If an extension cord is necessary, a cord with a current rating at least equal to that of the projector should be used. A cord rated for less amperage than the projector may overheat.
- Never push objects of any kind into this projector through cabinet slots as they may touch dangerous voltage points or short circuit parts that could result in a risk of fire or electrical shock.
- Do not expose this projector to rain or moisture.
- Do not immerse or expose this projector in water or other liquids.
- Do not spill liquid of any kind on this projector.
- Should any liquid or solid object fall into the cabinet, unplug the set and have it checked by qualified service personnel before resuming operations.
- Do not disassemble this projector, always take it to an trained service person when service or repair work is required.
- Do not use an accessory attachment which is not recommended by the manufacturer.
- Lightning - For added protection for this video product during a lightning storm, or when it is left unattended and unused for long periods of time, remove all power from the projector. This will prevent damage to the projector 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.
- Do not underestimate the weight of the projector. The projector weighs ±206 kg (±454 lbs). To prevent personal injury a hoisting tool should be used to lift the projector.
- To prevent injury, ensure that the lens, cooling system and all cover plates 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 defused 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 specifically related to the characteristics of laser light but solely to the high thermal induced energy of the light source; which is equivalent to lamp based systems.
  Thermal retinal eye injury is possible when exposed within the Hazard Distance. The Hazard Distance (HD) is defined from the projection lens surface towards the position of the projected beam where the irradiance equals the maximum permissible exposure as described in the chapter “High Brightness precautions: Hazard Distance”, page 16.
- Based on international requirements, no person is allowed to enter the projected beam within the zone between the projection lens and the related Hazard Distance (HD). This shall be made physically impossible by creating sufficient separation height or by placing optional barriers. Within the restricted area operator training is considered sufficient. The applicable separation heights are discussed in “High Brightness precautions: Hazard Distance”, page 16.
- The projector shall be installed in a restricted access room equipped with a key or security lock preventing untrained persons entering the Risk Group 3 use zone.
- Switch off the projector before attempting to remove any of the projector’s covers.
- 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.
- Lenses, shields or screens shall be changed if they have become visibly damaged to such an extent that their effectiveness is impaired. For example by cracks or deep scratches.
- The associated Safety responsible of the unit must evaluate the setup before the unit may be started.
- 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.
- Strictly minimize the number of people who have access to the unit. The unit may never be operated without permission of the responsible for safety.
- Do not put your hand or any body part in front of the beam.
  Do not clean the port window when the projector is switched on.

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 authorized Barco service personnel. Always insist on genuine Barco replacement parts. Never use non-Barco replacement parts as they may degrade the safety of this projector.

- Slots and openings in this equipment are provided for ventilation. To ensure reliable operation of the projector and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the projector too close to walls, or other similar surface. This projector should never be placed near or over a radiator or heat register. This projector should not be placed in a built-in installation or enclosure unless proper ventilation is provided.
- Projection rooms must be well ventilated or cooled in order to avoid build up of heat. 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

- 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.
- The projector must always be installed in a manner which ensures free flow of air into its air inlets.
- 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.
- Slots and openings in the cabinet are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register. The device should not be placed in a built-in installation or enclosure unless proper ventilation is provided.
- Ensure that nothing can be spilled on, or dropped inside the projector. If this does happen, switch off and remove all power from the projector. Do not operate the projector again until it has been checked by qualified service personnel.
- Do not block the projector cooling fans or free air movement around the projector.
- Proper operation of the projector can only be guaranteed in table mounting. It is not permitted to use the projector in another position. See installation procedure for correct installation.
- **Special care for Laser Beams**: Special care should be used when DLP projectors are used in the same room as high power laser equipment. Direct or indirect hitting of collimated laser beams on to the lens from outside the projector body 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.
- 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.
- Remove all power from the projectors mains terminals 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. Persistent stains may be removed with a cloth lightly dampened with mild detergent solution.
- To ensure the highest optical performance and resolution, the projection lenses are specially treated with an anti-reflective coating, therefore, avoid touching the lens. To remove dust on the lens, use a soft dry cloth. For lens cleaning follow the instructions precisely as stipulated in the projector manual.
- Rated maximum ambient temperature, t_a= 40°C (104°F).
- Rated humidity = 5% RH to 85% RH non-condensed.

On servicing

- Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage potentials and risk of electric shock.
- Refer all servicing to qualified service personnel.
- Attempts to alter the factory-set internal controls or to change other control settings not specially discussed in this manual can lead to permanent damage to the projector and cancellation of the warranty.

- Replacement parts: When replacement parts are required, be sure the service technician has used original Barco replacement parts or authorized replacement parts which have the same characteristics as the Barco original part. Unauthorized substitutions may result in degraded performance and reliability, fire, electric shock or other hazards. Unauthorized substitutions may void warranty.
- Safety check: Upon completion of any service or repairs to this projector, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

Malfunction unit

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

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

Safety Data Sheets for Hazardous Chemicals

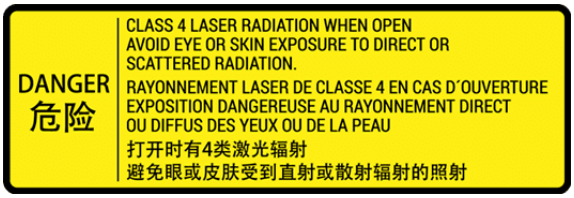
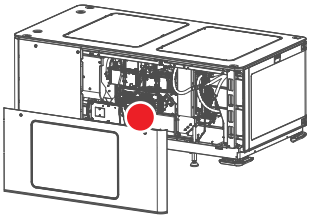
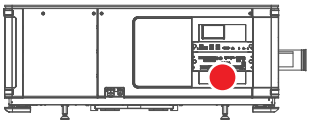
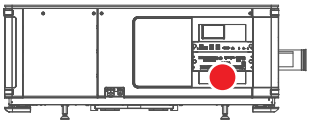
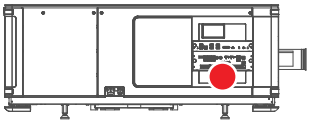
For safe handling information on chemical products, consult the Safety Data Sheet (SDS). SDSs are available upon request via safetydatasheets@barco.com.

On the reinforcement frame

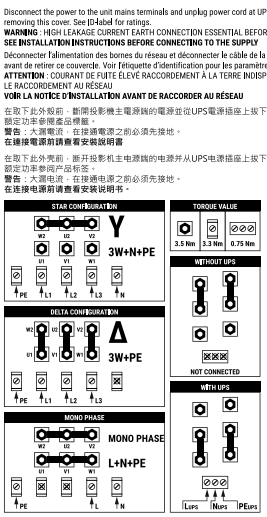
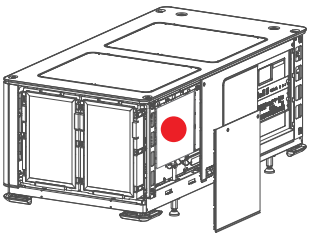
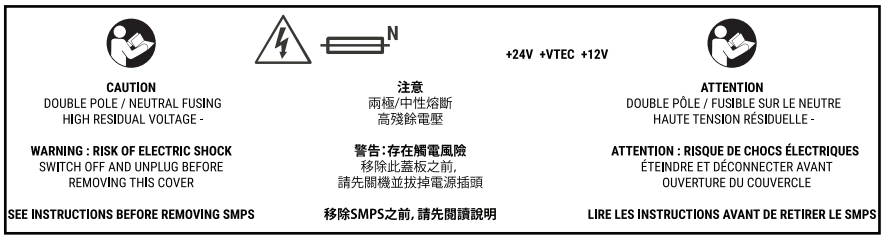
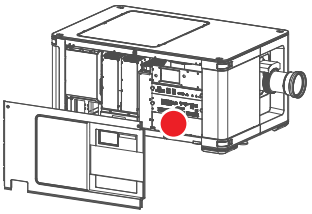
- The XDX reinforcement frame is exclusively designed for the XDX projectors and can thus not be used on other equipment.
- The reinforcement frame is single use. While certain brackets on the frame can be removed in order to remove the front, rear and top cover of the projector, it is not allowed to disassemble the reinforcement frame itself.
- It is not allowed to stack the reinforcement frames of the XDX projector on top of each other, nor is it allowed to suspend them from each other.
- When the projector is suspended from a truss, a minimum of four (4) clamps must be used to secure the projector. The clamps must be fixed to the projector frame. Use a truss which is capable of handling five (5) times the complete load of the system. Also use clamps that are capable of handling five (5) times the complete load of the system.
- It is the responsibility of the installer to suspend the reinforcement frame in a safe and secure fashion. Safety cables must be applied according to local regulations and standards. Safety cables must be dimensioned for the applicable load and no drop distance is allowed or must be limited as much as possible.
- When the safety cables have undergone a heavy shock, invisible damage may have occurred to the safety cables. In this case the safety cables must be replaced.

1.3 Product safety labels

Light beam related safety labels

Label image	Label description	Label location
	DANGER! CLASS 4 LASER RADIATION WHEN OPEN. AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION. DANGER! RAYONNEMENT LASER DE CLASSE 4 EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU RAYONNEMENT DIRECT OU DIFFUS DES YEUX OU DE LA PEAU. 危险! 打开时有4类激光辐射。 避免眼或皮肤受到直射或散射辐射的照射。	
	WARNING! DO NOT LOOK INTO THE BEAM; NO DIRECT EYE EXPOSURE TO THE BEAM IS PERMITTED. RG3 IEC EN 62471–5:2015. CLASS 1 IEC EN 60825–1:2014. HAZARD DISTANCE: CONSULT SAFETY MANUAL. “Important safety instructions”, page 10 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 [see applied label] EFFECTIVE ON [see applied label]. ATTENTION! NE PAS REGARDER LE FAISCEAU EVITER TOUTE EXPOSITION DIRECTE DES YEUX AU FAISCEAU. RG3 IEC EN 62471-5:2015. CLASS 1 IEC EN 60825-1:2014. DISTANCE DE SECURITE : CONSULTER LE MANUEL DE SECURITE 警告！勿观看光束 眼睛勿直接接触可允许暴露的光束 RG3 IEC EN 62471-5:2015 CLASS 1 IEC EN 60825-1:2014 危害距离：请参考安全手册 警告！請勿注視光源。禁止眼睛曝露在光源照射範圍。雷射危險等級 RG3 IEC EN 62471-5:2015 CLASS 1 IEC EN 60825-1:2014 安全危害距離：請參考安全手冊。	
	Hazard RG3: optical radiation warning symbol	
	Hazard RG3: not for household use symbol	

Electric related safety labels

Label image	Label description	Label location
	Disconnect the power to the unit mains terminals and unplug power cord at UPS inlet before removing this cover. See ID-label for ratings. **WARNING** : HIGH LEAKAGE CURRENT EARTH CONNECTION ESSENTIAL BEFORE CONNECTING SUPPLY. **SEE INSTALLATION INSTRUCTIONS BEFORE CONNECTING TO THE SUPPLY**. Déconnecter l'alimentation des bornes du réseau et déconnecter le câble de la prise UPS avant de retirer ce couvercle. Voir l'étiquette d'identification pour les paramètres. **ATTENTION** : COURANT DE FUITE ÉLEVÉ RACCORDEMENT À LA TERRE INDISPENSABLE AVANT LE RACCORDEMENT AU RÉSEAU **VOIR LA NOTICE D'INSTALLATION AVANT DE RACCORDER AU RÉSEAU** 在取下此外殼前，斷開投影機主電源端的電源並從UPS電源插座上拔下電源線。 額定功率參閱產品標籤。 **警告**：大漏電流，在接通電源之前必須先接地。 **在連接電源前請查看安裝說明書** 在取下此外壳前，断开投影机主电源端的电源并从UPS电源插座上拔下电源线。 额定功率参阅产品标签。 **警告**：大漏电流，在接通电源之前必须先接地。 **在连接电源前请查看安装说明书。**	 Screened on Mains cover
 **CAUTION!** DOUBLE POLE / NEUTRAL FUSING HIGH RESIDUAL VOLTAGE - **WARNING : RISK OF ELECTRIC SHOCK** SWITCH OFF AND UNPLUG BEFORE REMOVING THIS COVER. SEE INSTRUCTIONS BEFORE REMOVING SMPS. **注意** 兩極/中性熔斷 高殘餘電壓. **警告：存在觸電風險** 移除此蓋板之前， 請先關機並拔掉電源插頭 **移除SMPS之前，請先閱讀說明.** **ATTENTION** DOUBLE PÔLE / FUSIBLE SUR LE NEUTRE HAUTE TENSION RÉSIDUELLE - **ATTENTION : RISQUE DE CHOCS ÉLECTRIQUES**. ÉTEINDRE ET DÉCONNECTER AVANT OUVERTURE DU COUVERCLE. **LIRE LES INSTRUCTIONS AVANT DE RETIRER LE SMPS.**	 Printed on SMPS cover

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 cornea or on the skin. The light beam is considered (to be) unsafe for exposure if the distance from a person to the light source is less than the HD.

Restriction Zone (RZ) based on the HD

The HD depends on the amount of lumens produced by the projector and the type of lens installed. See chapter “HD in function of modifying optics”, page 19.

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

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

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

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

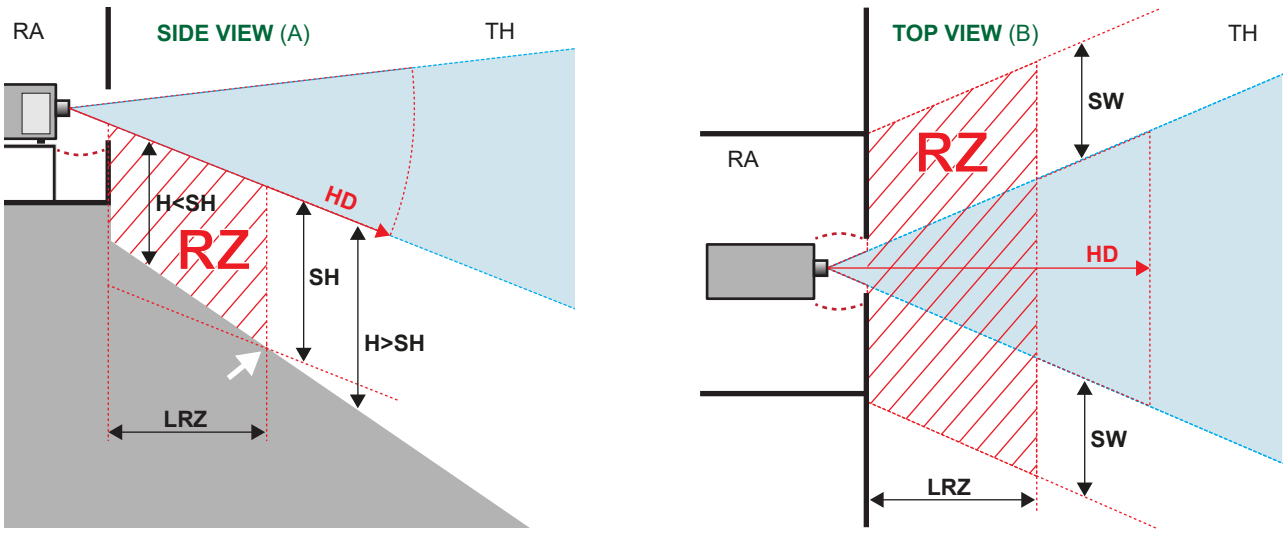


Image 1–1

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

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

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

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

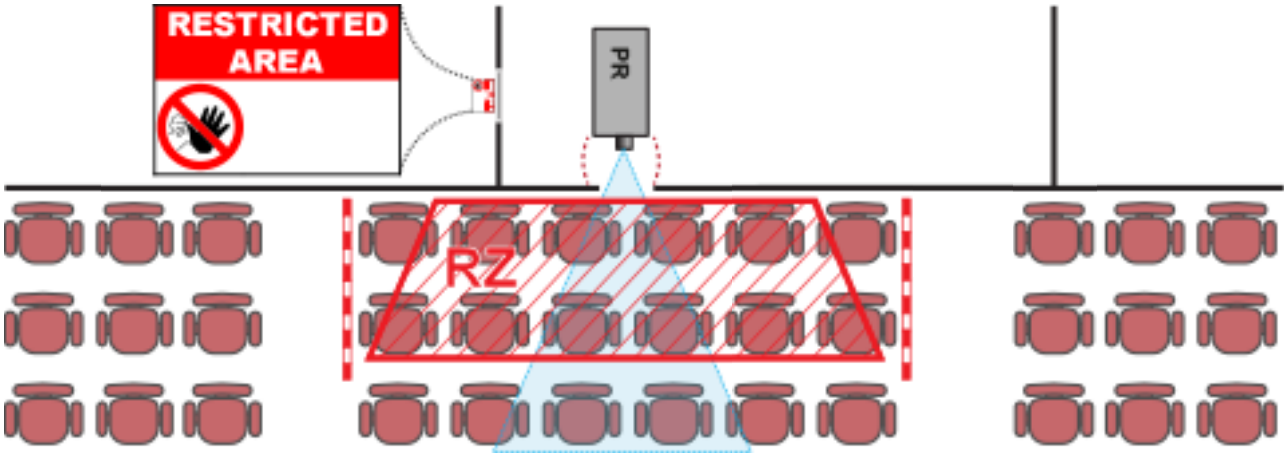


Image 1–2

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 cornea or on the skin. The light beam is considered (to be) unsafe for exposure if the distance from a person to the light source is less than the HD.

Restriction Zone (RZ) based on the HD

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

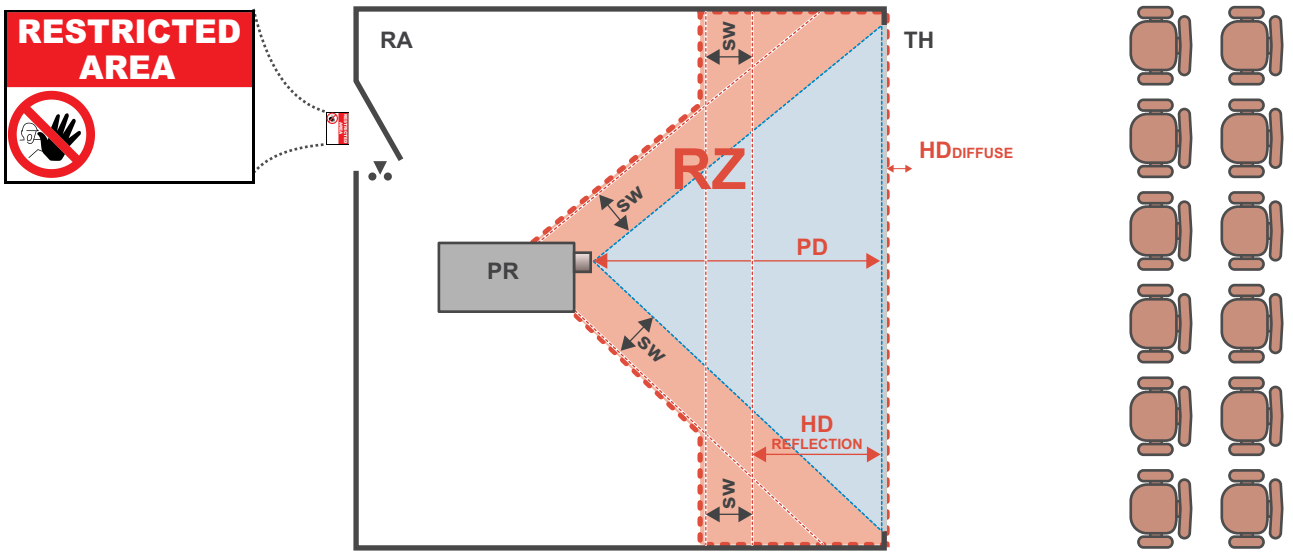


Image 1–3

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

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

- HD as discussed in “High Brightness precautions: Hazard Distance”, page 16, relevant for intrabeam exposure.
- $HD_{reflection}$: the distance that has to be kept restrictive related to the reflected light from the rear projection screen.
- $HD_{diffuse}$: the relevant distance to be considered while observing the diffuse surface of the rear projection screen.

As described in “High Brightness precautions: Hazard Distance”, page 16, it is mandatory to create a restricted zone within the beam areas closer than any HD. In the enclosed projection area the combination of two restricted zones are relevant: The restricted zone of the projected beam toward the screen; taking into account 1 meter Separation Width (SW) from the beam onward. Combined with the restricted zone related to the rear reflection from the screen ($HD_{reflection}$); also taking into account a 1 meter lateral separation.

The $HD_{reflection}$ distance equals 25% of the difference between the determined HD distance and the projection distance to the rear projection screen. To determine the HD distance for the used lens and projector model see chapter “HD in function of modifying optics”, page 19.

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

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

1.6 HD in function of modifying optics

Hazard distance

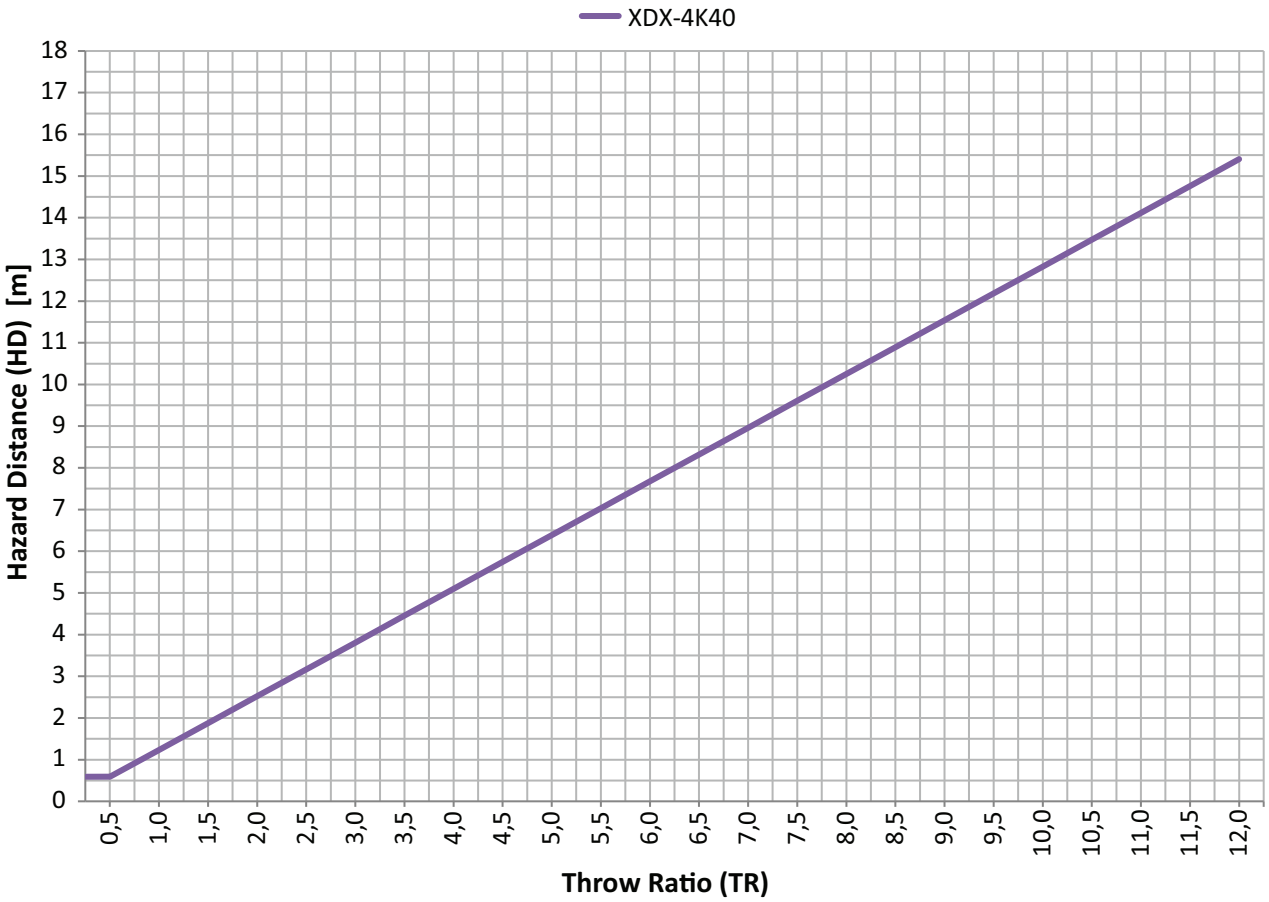


Image 1–4

HD Hazard Distance
TR Throw Ratio

2 System overview

2.1 Conventions

Convention projector orientation

This manual refers to the light source 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.

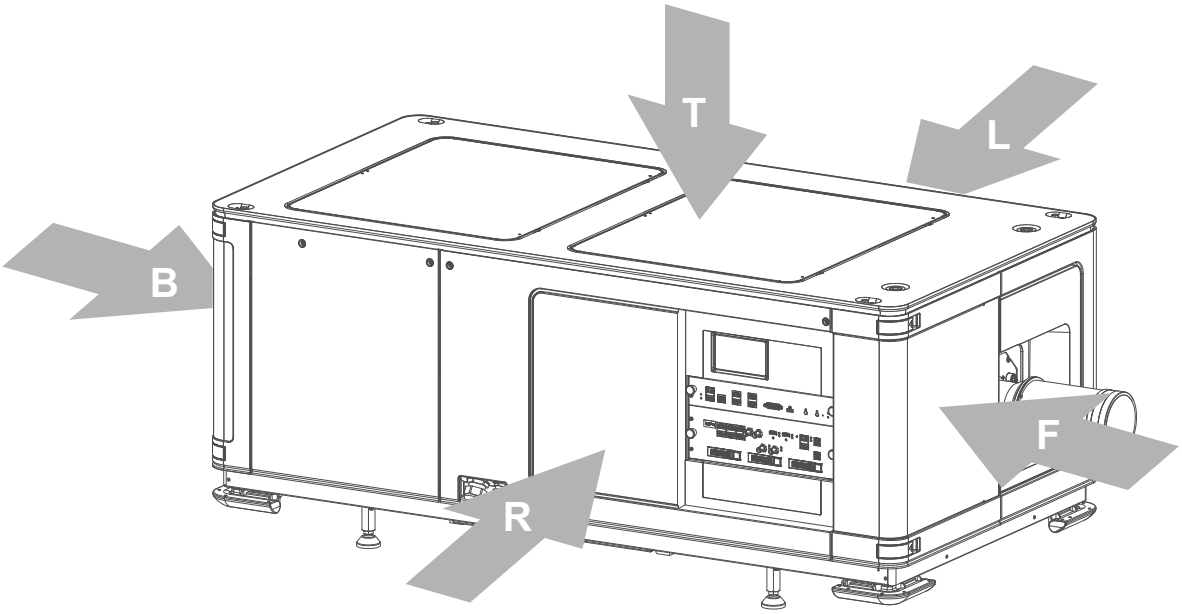


Image 2–1

T Top of the projector.
L Left side of the projector (Light source side).
F Front of the projector.
R Right side of the projector (User input side).
B Back side of the projector.

2.2 Air flow

Air flow projector

The XDX projector has two air outlets and three air inlets. The air inlets are located on the front side and bottom side of the projector. The air outlets are located on the top and on the back side of the projector.

Take into account the location of the air inlets and outlets when determining a suitable location to install the projector. Make sure that when installed, the hot air coming from the air outlets is not automatically sucked back in via the air inlets.

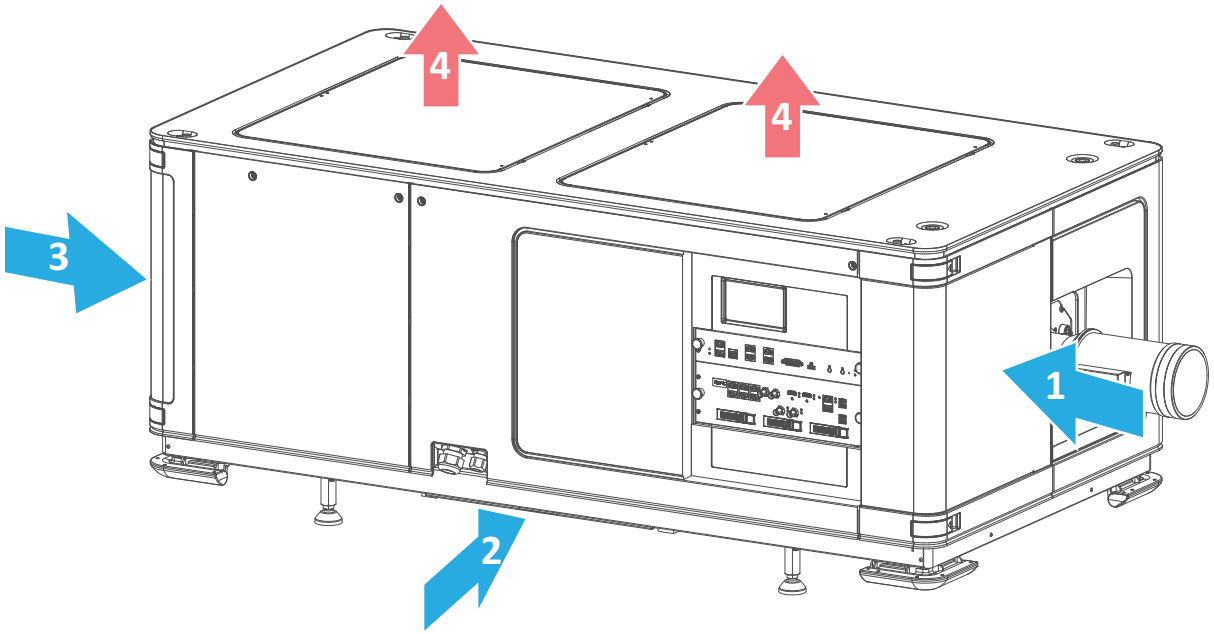


Image 2–2

1 Air inlet front of the projector
2 Air inlet bottom side of the projector (at the user input side)
3 Air inlets back of the projector
4 Air outlets top of the projector

2.3 Web Communicator

Built-in web application

The Web Communicator application is a uniquely powerful and easy to use built-in web application for the Barco projector. This application provides all the necessary tools necessary to setup and control the connected projector. A comprehensive array of easy to access menu pages provide the projectors digital input, output and screen display via a combination of simple buttons and displays.

The Web Communicator user interface is readily available on the projector without any additional software installation. It is accessible via a web browser and is fully supported on iOS and Android devices.

While all web browsers are supported, the recommended browser is Chrome.

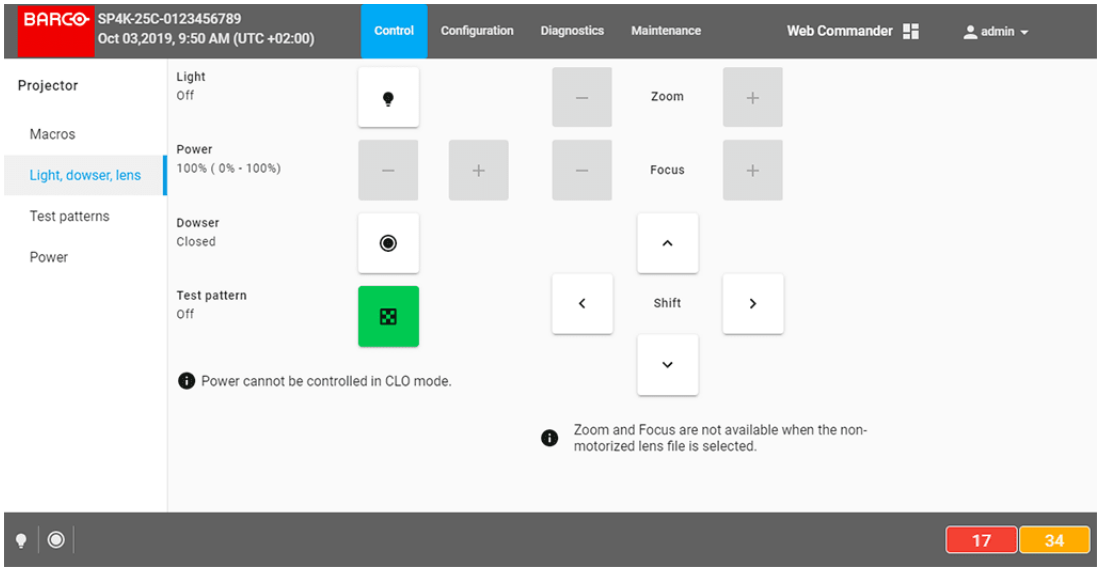


Image 2–3 Example of the Web Communicator tool

Quick and Easy configuration

Clearly indicated tab pages allow the control of Projector connection, configuration, test, color calibration and configuration with an existing automation system. All actions can be activated by a simple click. Depending on the user level, functions are enabled or disabled in the application. The enabled functions are only accessible via a password entry and that prevents misalignment once everything is correctly aligned.

Installation preparations

3

About this chapter

Read this chapter before installing your XDX projector. It contains important information concerning installation requirements for the XDX projector, such as minimum and maximum allowed ambient temperature, humidity conditions, required safety area around the installed projector, required power net, etc.

Furthermore, careful consideration of things such as image size, ambient light level, projector placement and type of screen to use are critical to the optimum use of the projection system.

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

3.1 Installation requirements

Environmental conditions

The table below summarizes the physical environment in which the XDX series projector can be operated or stored.

Environment	Operating	Non-Operating
Ambient Temperature	10°C (50°F) to 40°C (104°F)	-15°C (5°F) to 60°C (140°F)
Air cleanliness	Clean office environment (equivalent with clean room standard ISO 14644-1 ISO Class 9)	n.a.
Humidity	5% RH to 85% RH Non-Condensed	5% to 95% RH Non-Condensed
Altitude	-60 (-197 ft) to 4.000 m (13.125 ft)[1]	-60 (-197 ft) to 10.000 m (32.810 ft)

Let the projector acclimatize after unpacking. Neglecting this may result in a failure in the start-up of the Light Processor Unit.

It is advised to install the projector in a room with a fixed or constant temperature. If the projector is installed in an area with rapidly changing temperatures (e.g. projector air inlet is right next to an air conditioning vent), this may have an effect on the performance of the projector. The projector will keep playing, but it will require a few minutes to accommodate for shifts in temperature.

Use in high altitude conditions

Combining high altitude and high ambient temperature creates extra challenging conditions for any electronics system; projectors are no exception to this. The system can be used up to 4.000 m (13.125 ft) altitude[1], but the maximum ambient temperature should be reduced once exceeding 2.500 m (8.202 ft). This in accordance with the following table:

Altitude (m)	Altitude (ft)	Temp (°C)	Temp (°F)
0	0	40	104
2 000	6 562	40	104
2 500	8 202	39	102
3 000	9 842	38	100
3 500	11 483	37	99
4 000	13 123	35	97

Main Power requirements

Depending on the available power circuit, all XDX projectors can operate from a single-phase power net or three-phase power net.

Power system	Power requirements
three-phase power net	• 200–240V/346–415V, 3W+N+PE, 15A, 50/60 Hz (Y) • 200–240V, 3W+PE, 20A, 50/60 Hz (Δ)
single-phase power net	200–240 VAC, L1+L2/N+PE, 25A, 50/60 Hz

1. Limited to 2.000 meters (6.562 feet) for Chinese Mainland due to local regulations.

The projector must be switched internally between a star connection (Y), a delta connection (Δ) or a mono-phase connection or vice versa. See “Connecting the projector with the power net”, page 57.

The power cord required to connect the projector with the power net is not delivered with the projector. It is the responsibility of the customer to provide the correct type of power cord. The cross-sectional area of the conductors in the power supply cord shall not be less than 4 mm^2 (10 AWG).

In single-phase operation, the power cord must be rated for **minimum 300 V**.

In three-phase operation, the power cord must be rated for **minimum 300 V** in case of a 3W+PE (208V) power system, and **minimum 500 V** in case of a 3W+N+PE (230/400 V) power system. For a 3W+PE system, 208 V is measured between the lines. For a 3W+N+PE system, 400 V is measured between the lines, 230 V is measured between the lines and the neutral.

To protect operating personnel, the National Electrical Manufacturers Association (NEMA) recommends that the instrument panel and cabinet be grounded. In no event shall this projector be operated without an adequate cabinet ground connection.

The AC supply must be installed by a qualified electrician in conformance to local codes. Hardware, wire sizes and conduit types must comply with local codes.

A readily accessible disconnect device shall be incorporated externally to the equipment for removal of the power to the equipment mains terminals.

The building installation must be provided with a circuit breaker of max. 40 A to protect the complete unit.

WARNING: Disconnect the power to the unit mains terminals for removal of all power from the unit.

UPS requirements

The Uninterruptible Power Supply (UPS), also known as a Continuous Power Supply (CPS), must have an output voltage of 200-240 V at 50/60 Hz and must be capable of delivering an output current of 5 A. This UPS provides only power for the electronics and not for the light source.

The connection between the UPS unit and the UPS inlet of the projector must be done with a certified AC power supply cord of minimum 1,50 mm^2 or 14 AWG and minimum 300 V.

The XDX does not have a built in UPS unit.

Projector weight

Do not underestimate the weight of the XDX projector. The projector in frame weights ±206 kg (±454 lbs) without lens. Ensure that the pedestal or truss on which the projector is installed on or suspended from is capable of supporting the complete load of the system. Take into account that the projector is too heavy to lift with people. Use a hoisting mechanism instead.

3.2 Unpacking the projector

What you need to do?

Upon delivery, the projector is packed in a cardboard box upon a wooden pallet and secured with strapping bands and buckle clips. Furthermore, to provide protection during transportation the projector is surrounded with foam. Once the projector has arrived at the installation site it needs to be removed from the cardboard box and wooden pallet in a safe manner, without damaging the projector.

After unpacking let the projector acclimatize to a room temperature between 10°C (50°F) and 35°C (95°F). It is suggested to only start using the projector after having it stored for a minimum of 16 hours in its final location. Neglecting this may result in a failure in the start-up of the Light Processor Unit.

Required tools

- Side cutter
- Knife
- Hoisting tool

How to unpack the XDX projector

1. Remove the strapping bands from the packaging. Use a cutting tool (e.g. side cutter, knife, etc.) to carefully cut the straps.
2. Carefully cut open the tape of the box and open it.

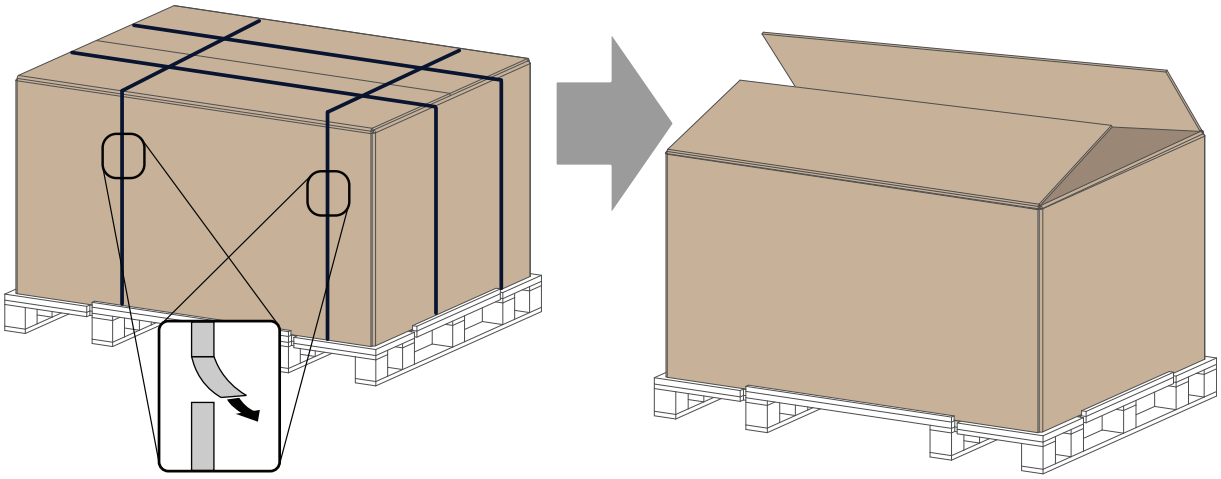


Image 3–1 Removing bands and opening the box

3. Remove the top foam pieces and top cardboard plate.
4. Lift up and remove the outer box.

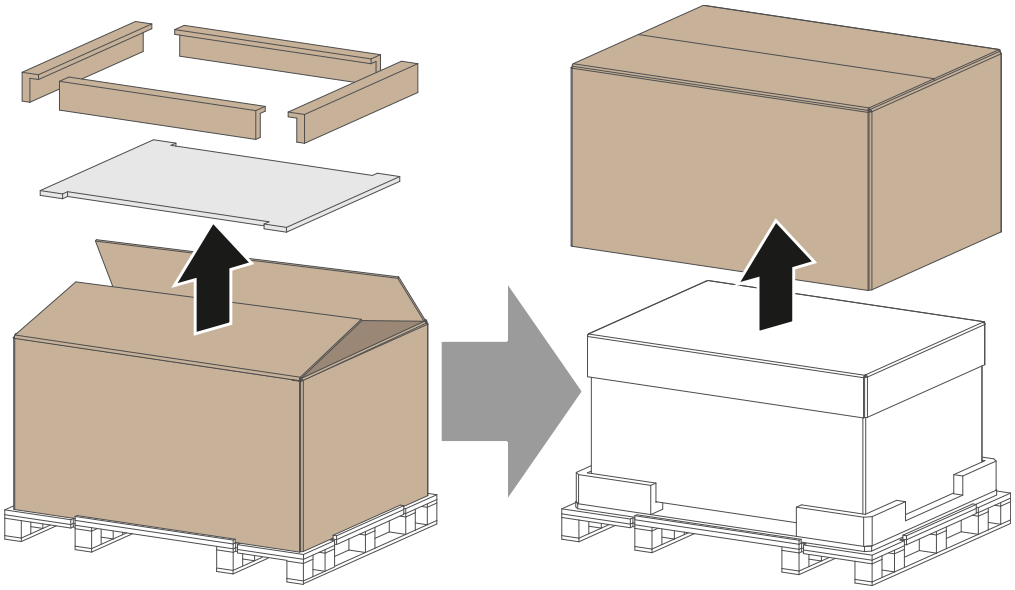


Image 3–2

5. Take off the inner lid
6. Remove the safety manuals.
7. Remove any foam piece present between the outer cardboard box and the inner box.

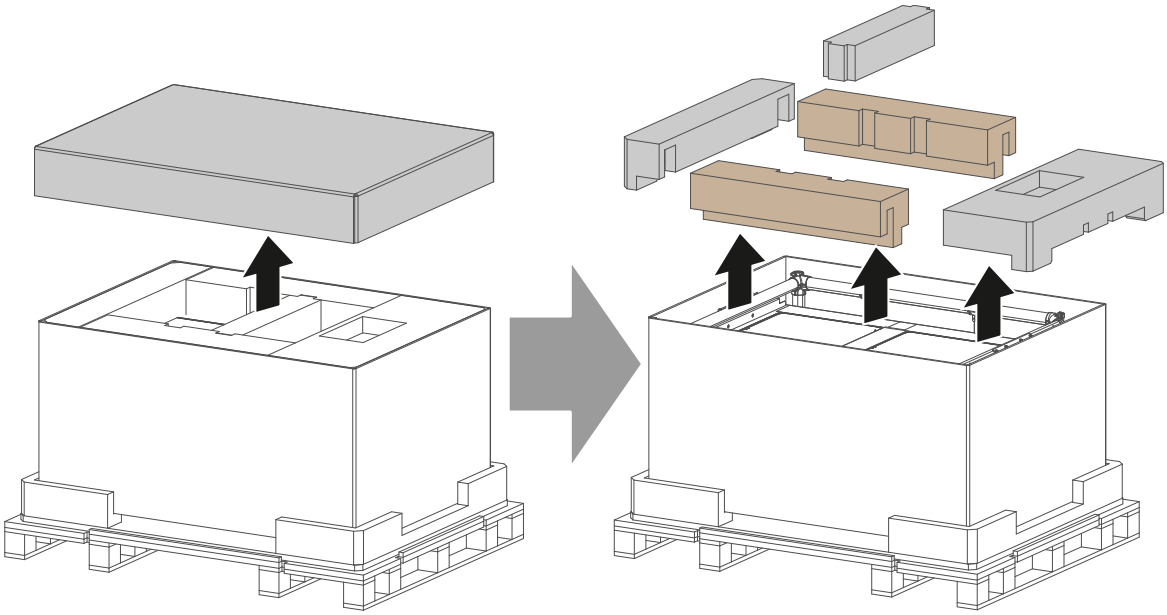


Image 3–3 Removing the top lid and foam pieces from the inner box

8. Remove the outer cardboard box and any additional plates.
9. Lift the projector from the wooden pallet using a hoisting tool.

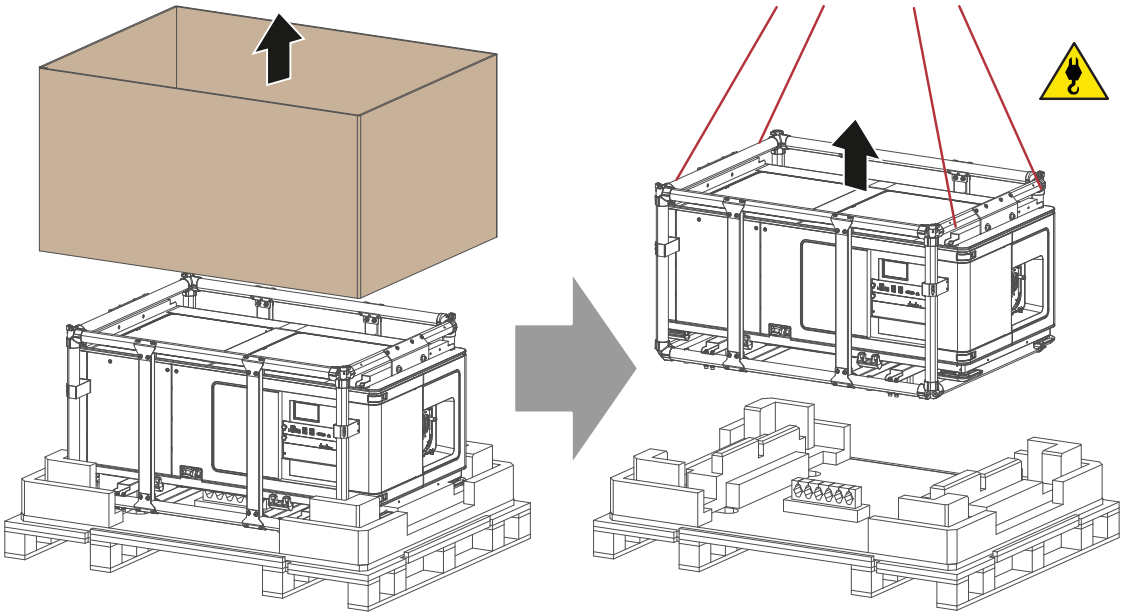


Image 3–4 Removing the inner box and lifting up the projector.

Caution: Take into account the weight of the projector when manipulating the projector. For this reason, make sure to only use a hoisting or lifting tool to lift up and move the projector.
Make sure to provide a hoisting or lifting tool capable of lifting and moving the projector to its designated position.

Save the original shipping carton and packing material, they will be necessary if you ever have to ship your projector. For maximum protection, repack your projector as it was originally packed at the factory.

The projector is delivered with a plastic cover inside the Lens Holder. This to prevent intrusion of dust and foreign particles.

The projector is not delivered with a lens by default. If you also ordered a lens, it will be delivered in a separate box. For lens installation, see “Installation of a lens”, page 38.

3.3 Projector configurations

The different configurations

The projector can be installed on a table or be hung from a truss beam, and this in a front projection or rear projection configuration. This can happen as long as the projector is not hung upside down (the top cover can not face downward). Depending on the physical configuration of the projector and the used lens (e.g. UST lenses), the projected image may have to be flipped horizontally and/or vertically.

The projected image can be adapted via the menu: *Configuration* > *Projector* > *Image orientation*.

Front projection

The projector is installed, either on a table or hanging from a truss beam, at the same side of the audience.

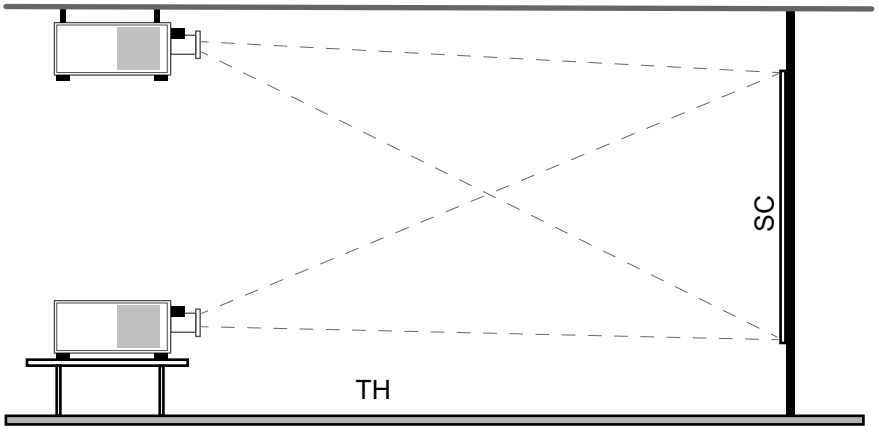


Image 3–5 Examples of Front projection

TH Theater (Audience area)
SC Screen

Rear projection

The projector is installed, either in on a table or hanging from a truss beam, at the other side of the screen, opposite to the audience.

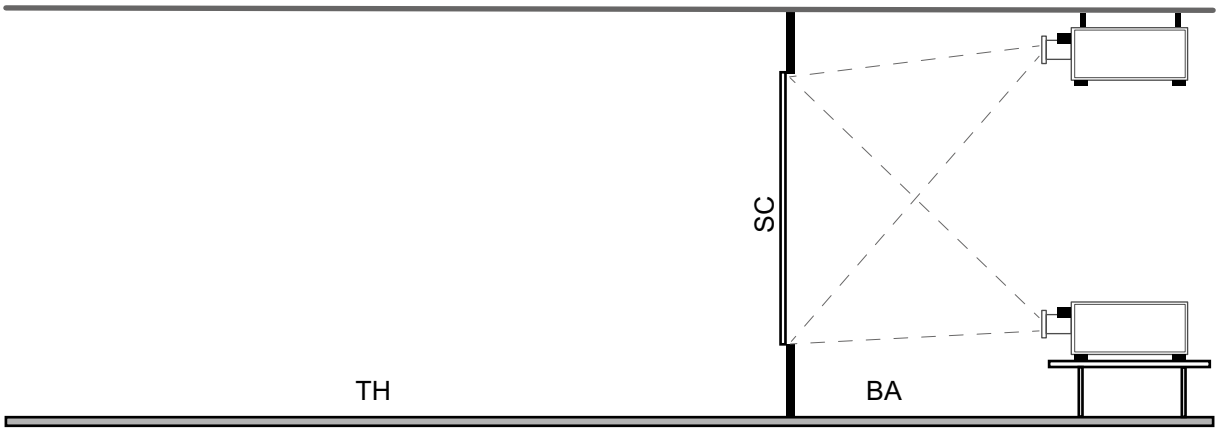


Image 3–6 Examples of Rear projection

SC Screen
TH Theater (Audience area)
BA Backstage area

Positioning the projector

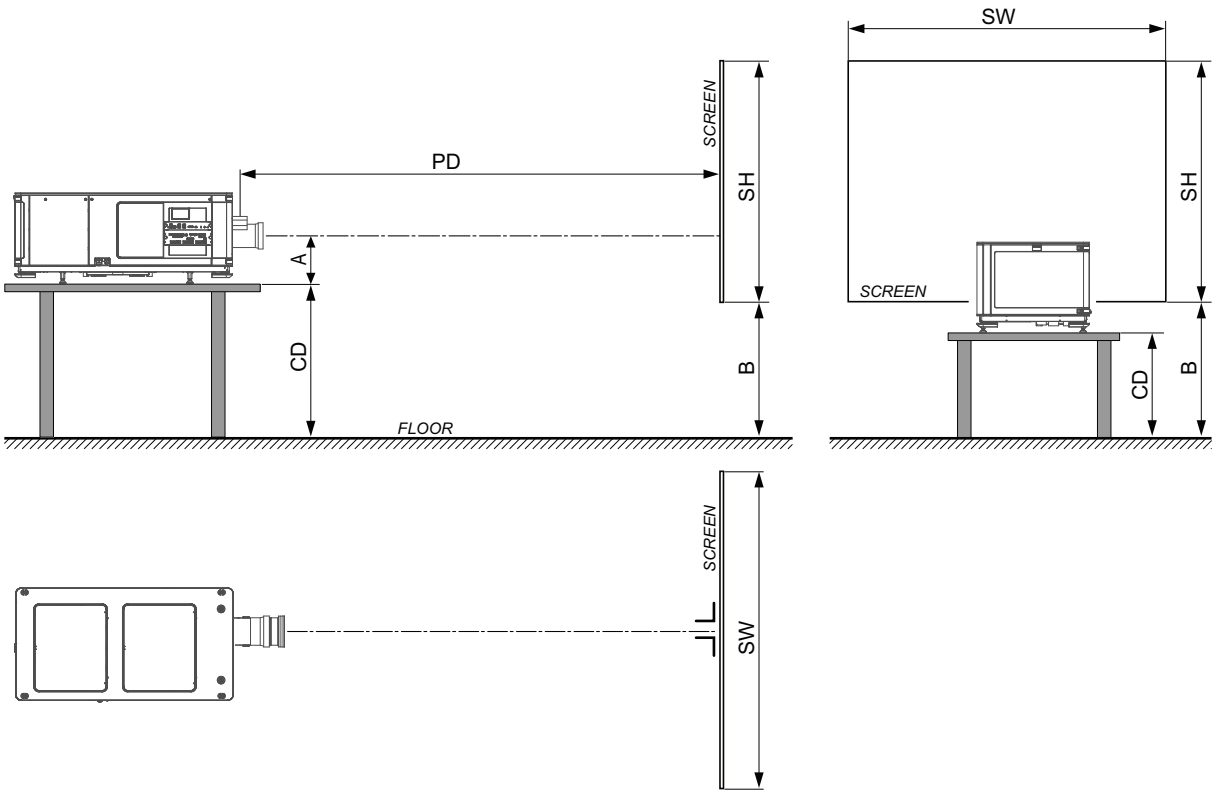


Image 3–7 Positioning the projector

The projector should be installed at right angles (horizontally and vertically) to the screen at a distance PD. Note the distance (A) between lens centre and table surface is slightly variable. This distance (A) is nominal 223 mm in case all feet are turned in completely and the vertical lens shift is set to zero (0).

On axis / off axis projection

The position of the projector with reference to the screen may also be different depending on the installation. Basically the projector can be positioned in On-Axis or Off-Axis configuration. On-Axis configuration means that the projector is positioned so as to have the centre of the lens coinciding with the centre of the screen. Off-Axis projection is obtained by shifting the lens up, down, left or right. Several parameters can be calculated determining the position in any installation.

Formula to calculate the distance CD for On-Axis projection: `CD = SH/2 + B - A`

Maximum shift range

All lenses have a shift range of 120% up, 120% down, 30% left, and 30% right. This range is valid for all throw ratios. Within these shift ranges the projector and lens will perform excellently.

These are the mechanical limits of the B-Lens holder. It is not possible to configure the projector outside of these shift ranges.

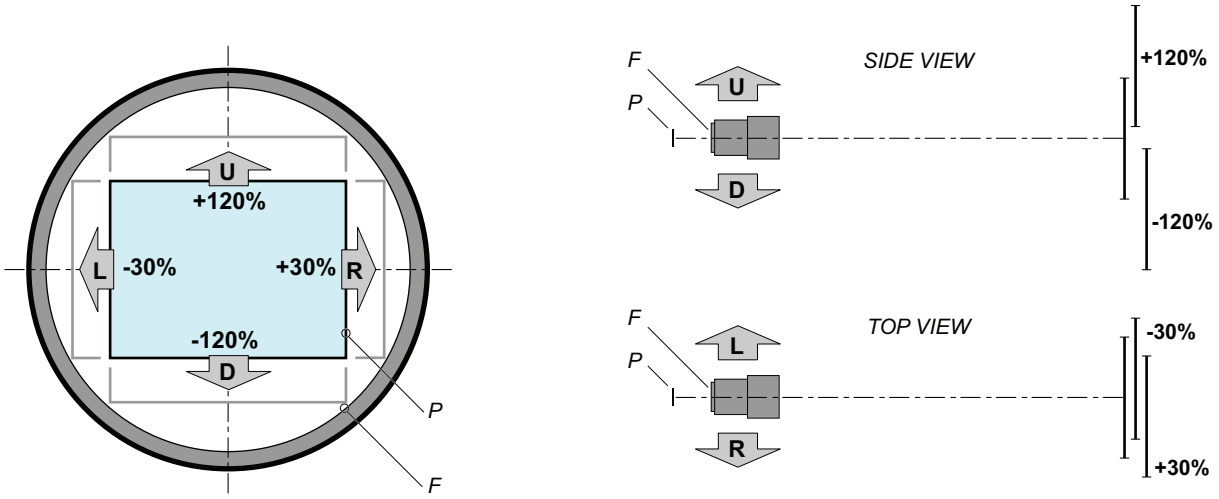


Image 3–8 Shift range for an XDX projector

P DMD.
F Field of view.

Projector tilt and rotation limits

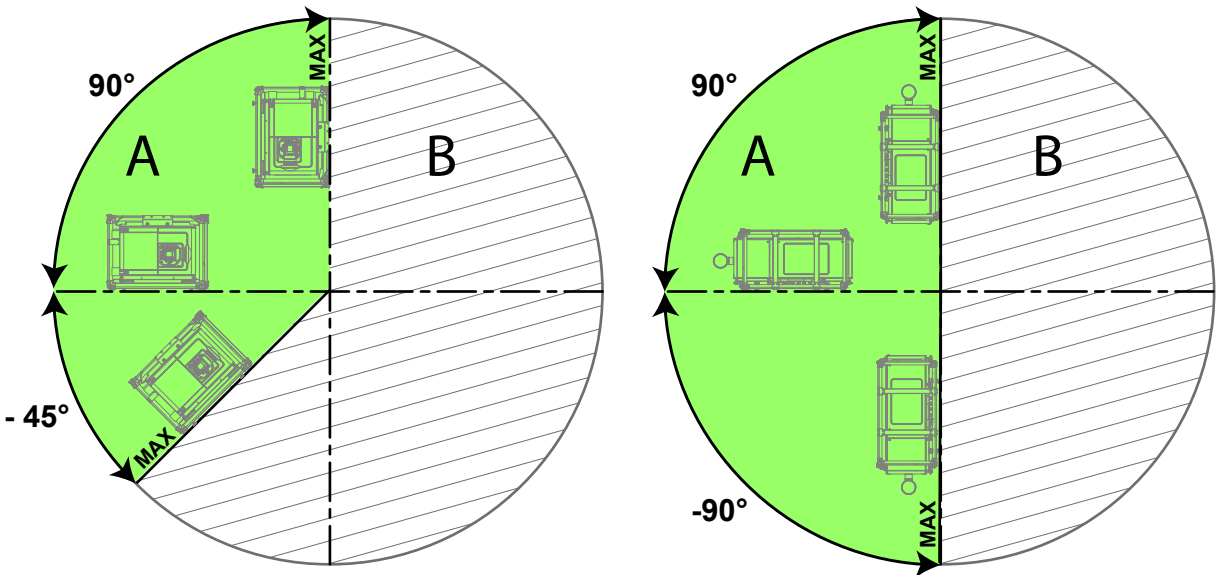


Image 3–9 Left: Projector rotation limits, Right: Projector tilt limits.

A Allowed tilt/rotation range
B Not allowed tilt/rotation range

While combinations of projector tilt and projector rotation can be used, as a general rule of thumb make sure the top cover does not point downward.

3.4 Initial inspection

General

Before shipment, the projector was inspected and found to be free of mechanical and electrical defects. As soon as the projector is unpacked, inspect for any damage that may have occurred in transit. Save all packing material until the inspection is completed. If damage is found, file claim with carrier immediately. The Barco Sales and Service office should be notified as soon as possible.

Projector Box content

After unpacking the projector it is recommended to check if all following items where included:

- A note with QR codes to inform the user that the installation manual (this manual) is available online on the Barco website.
- Worldwide safety manual

Mechanical check

This check should confirm that there are no broken knobs or connectors, that the cabinet and panel surfaces are free of dents and scratches, and that the operating panel is not scratched or cracked. The Barco Sales and Service office should be notified as soon as possible if this is not the case.

4 Lenses

About this chapter

This chapter gives an overview of available lenses for the XDX projector. It also explains how you can select the best suited lens for your specific situation using the lens calculator. Also, it is explained how to install and remove a lens from the projector lens holder and how you can shift, zoom and focus the lens. Furthermore, it is described how you can perform the Scheimpflug adjustment.

CAUTION: Never transport the projector with a lens mounted in the lens holder. Always remove the lens before transporting the projector. Neglecting this can damage the lens holder and prism.

Each time a lens is manipulated (e.g. removed and installed in a projector) it needs to be calibrated, using Calibrate and return to mid position / original position.

4.1 Available lenses

This list only takes into account active lenses at the moment of release of this manual. Lenses that have become end-of life or end-of service are not taken into account. Consult the Barco website for the most up-to-date information on active lenses.
Consult the lens selection list to see which non-active lenses are also supported.

Which lenses are available for the XDX-4K40?

Order No	Type	Resolution	Throw range	Image
R9802580	XLD lens – Ultra-Short Throw 90°	DC4K 1.38"	0.38 : 1	
R9852945	XLD lens – High Brightness	DC4K 1.38"	0.726 : 1	
R9852950	XLD lens – High Brightness	DC4K 1.38"	0.91 : 1	
R9856506	B-lens – High Brightness	DC4K 1.38"	1.13 - 1.72 : 1	
R98565062	B-lens – High Contrast	DC4K 1.38"	1.13 - 1.72 : 1	
R9856527	B-lens – High Brightness	DC4K 1.38"	1.46 - 2.10 : 1	
R98565272	B-lens – High Contrast	DC4K 1.38"	1.46 - 2.10 : 1	
R9856529	B-lens – High Brightness	DC4K 1.38"	2.00 - 3.35 : 1	
R98565292	B-lens – High Contrast	DC4K 1.38"	2.00 - 3.35 : 1	
R9855947	B-lens – High Brightness	DC4K 1.38"	2.53 - 4.98 : 1	
R9852920	XLD lens – High Brightness	DC4K 1.38"	4.98 - 7.69 : 1	

4.2 Lens selection

How to select the right lens

1. Determine the required screen width (SW).
2. Determine the approximate position of the projector in the room.
3. Start up the *Lens Calculator* on the Barco website: https://lenscalculator.barco.com/ to determine the possible lenses for your configuration.

   The Lens Calculator window opens.

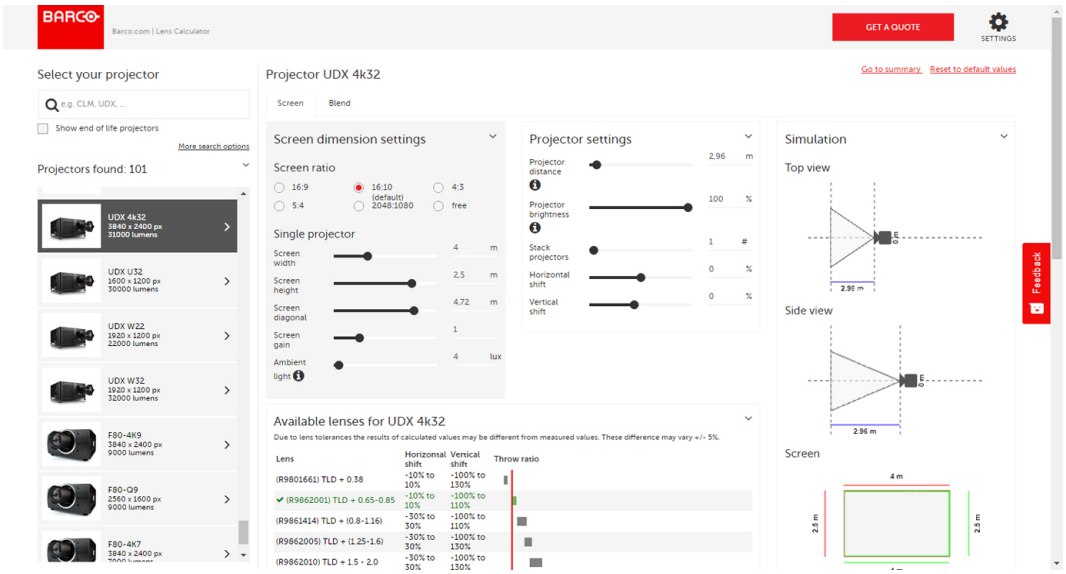


Image 4–1 Lens calculator

The Lens Calculator can also be used to determine the position of the projector when the lens type and screen width is known.

Due to lens tolerances the results of calculated values may be different from measured values. These difference may vary +/- 5%.

4.3 Installation of a lens

How to install a lens into the B-lens holder, while using the optical adapter

1. Place the lens holder in the “unlocked” position. Do this by pulling the lens lock handle (reference 1, Image 4–2) outward and then towards the lens power supply socket (reference 2) as illustrated.

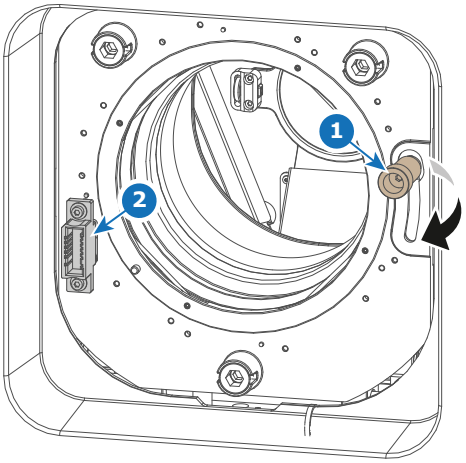


Image 4–2 Lens installation, preparing the lens holder

2. Remove the dust cover from the lens opening.

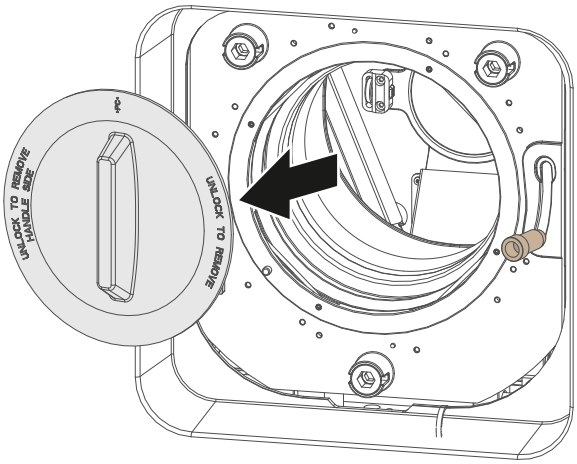


Image 4–3

Tip: While not placed in the projector, place the dust cover in a lockable plastic bag to prevent dust from gathering on the cover.

3. Take the lens assembly out of its packing material and remove the lens caps on both sides.
4. Gently insert the lens in such a way that the lens connector matches the socket (reference 2).

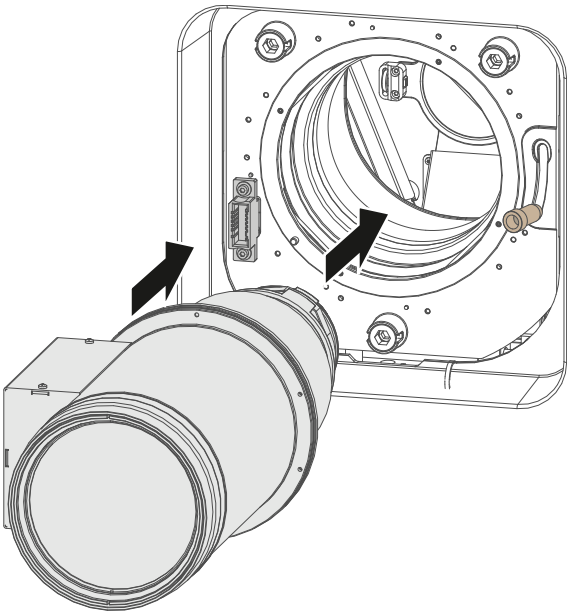


Image 4–4 Lens installation

5. Insert the lens until the connector seats into the socket.

   Warning: Do not release the lens yet, as the lens may fall out of the lens holder.

6. Secure the lens in the lens holder by sliding the primary lens lock handle into the “locked” position (to the top of the projector). Ensure the lens touches the front plate of the lens holder.

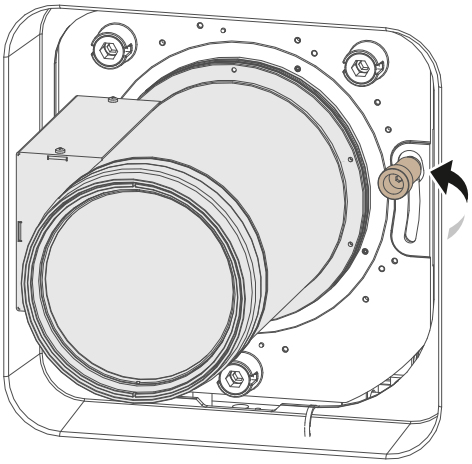


Image 4–5 Locking the lens

7. Check if the lens is really secured by trying to pull the lens out of the lens holder.

4.4 Installing the lens safety cable

When to use the lens safety cable

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

Content of the lens safety cable kit (R9801196)

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

Image 4–6

How to install the lens safety cable

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

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

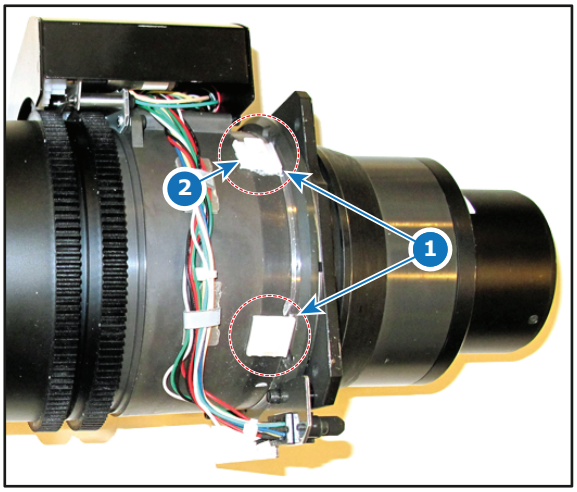


Image 4–7

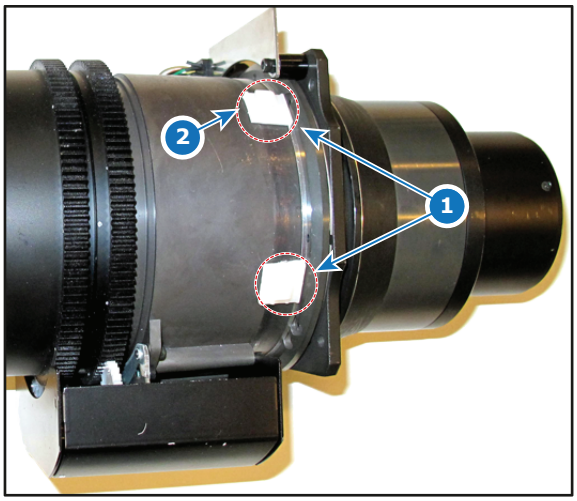


Image 4–8

3. Snap the first loop end of the safety cable into one of the following clips and let the loop end point downwards.
   1. Configuration A: Use the upper clip on the side of the cable bundle (reference 2, Image 4–7).
   2. Configuration B: Use the upper clip on the non-wired side (reference 2, Image 4–8).
4. Slide the rest of the cable around the lens counterclockwise. Click the cable into every clip it passes in this loop.

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

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

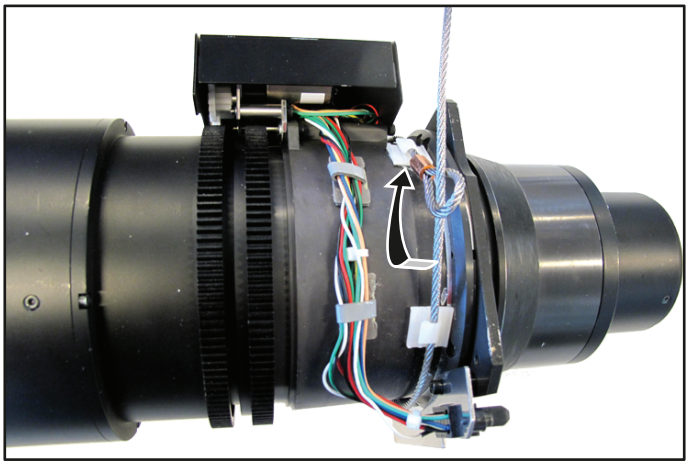


Image 4–9 Example of configuration A

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

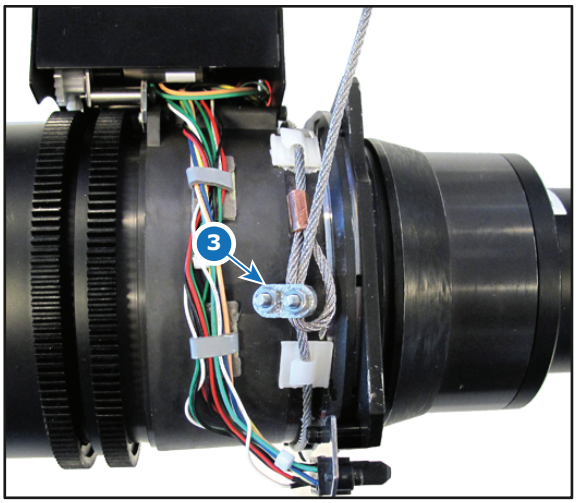


Image 4–10 Example of Configuration A

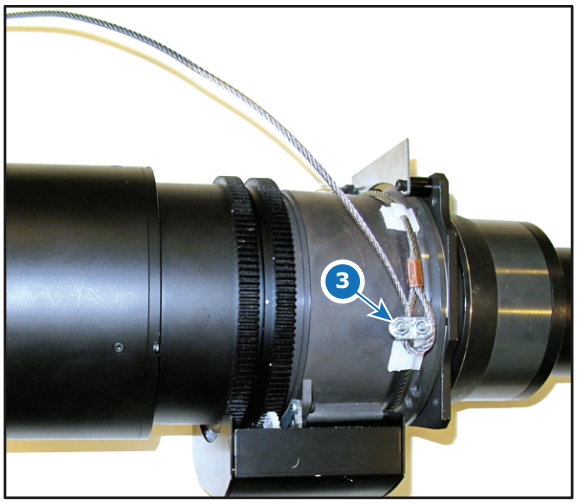


Image 4–11 Example of Configuration B

7. Close the U-bolt and tighten it.

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

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

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

How to mount the cable to a short barrel lens

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

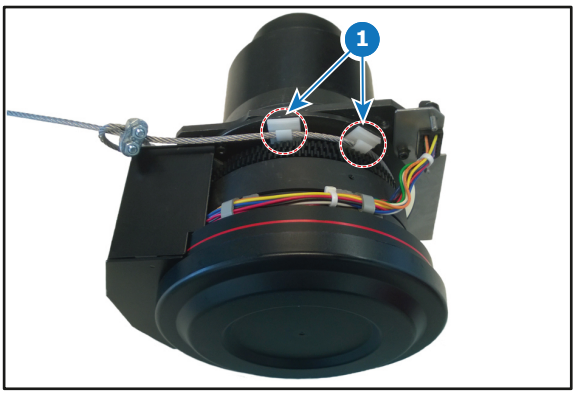


Image 4–12

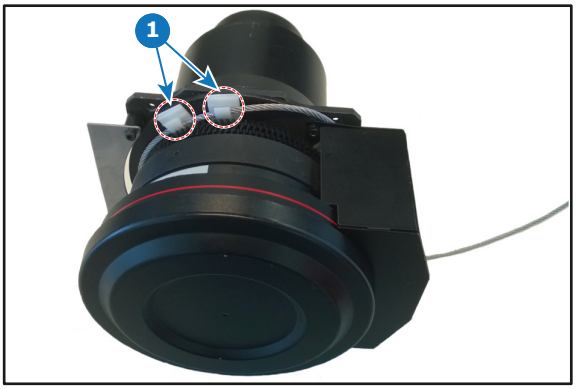


Image 4–13

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

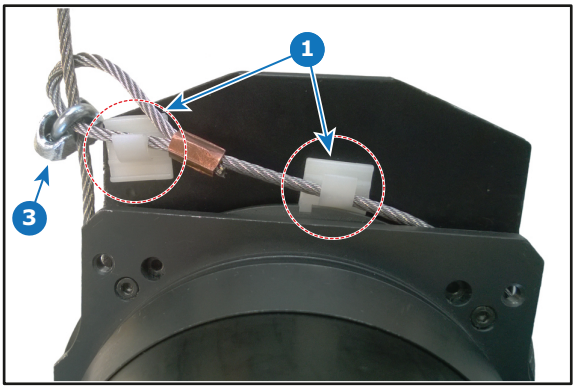


Image 4–14

3. Carefully slide the safety cable through the cable clips. Make sure the cable is placed between the motor block and the cover plate.
4. Slide the cable through the loop end at the beginning of the cable.
5. Mount a U-bolt on the cable, with the open ends oriented outwards (reference 3, Image 4–14). Make sure that both a part of the loop end and the outgoing part of the safety cable are placed in the enclosure.
6. Close the U-bolt and tighten it.

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

The result should look similar to the following example.

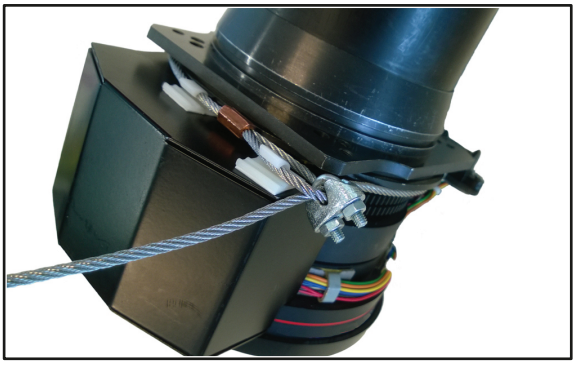


Image 4–15

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

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

4.5 Installation of the lens safety cable on the UST lens

When to use the lens safety cable

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

For the content of the kit, see “Installing the lens safety cable”, page 40.

How to install the lens safety cable on the UST lens

1. Ensure that the safety cable and its accessories are in good condition (not damaged).
2. Stick three to four clips(1) on the surface of the lens body.

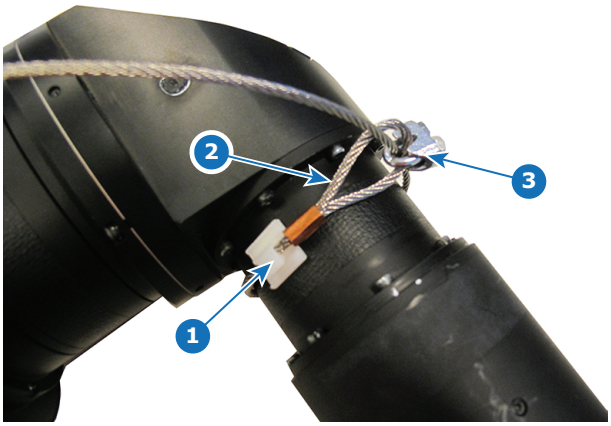


Image 4–16

3. Nap the first loop end of the safety cable into one of the clips.
4. Slide the rest of the cable around the lens. Click the cable into every clip it passes in the loop.
5. Slide the cable through the loop end at the beginning of the cable (2).
6. Mount a U-bolt on the lens holder with the open ends oriented outwards (3). Make sure that both a part of the loop end and the outgoing part of the safety cable are placed in the enclosure.
7. Close the U-bolt and tighten it.
8. Place the shackle through the free loop end of the safety cable.
9. Secure the safety cable around the reinforcement frame. Secure the shackle by turning the safety ring of the shackle over the open end.

4.6 Installation of UST lens support

Limited mounting position

The UST lens can only be mounted on the XDX while in the XDX support bracket. Also, it can only be mounted in one position: facing the left side.

Preparations

Make sure the following are done before mounting the UST lens.

1. Prepare the UST lens with lens safety cable and clips, as described in “Installation of the lens safety cable on the UST lens”, page 44.
2. Install the UST lens as described in “Installation of a lens”, page 38.

Required tools

- Allen wrench 5 mm
- Allen wrench 4 mm
- Flat screwdriver

Required parts

Lens support kit for XLD UST lens

How to install the lens support

1. Mount the lens hoop by locking both lens hoop halves (2x R8798056) around the lens. Secure the halves with two M6 bolts, M6 washers and M6 nuts.

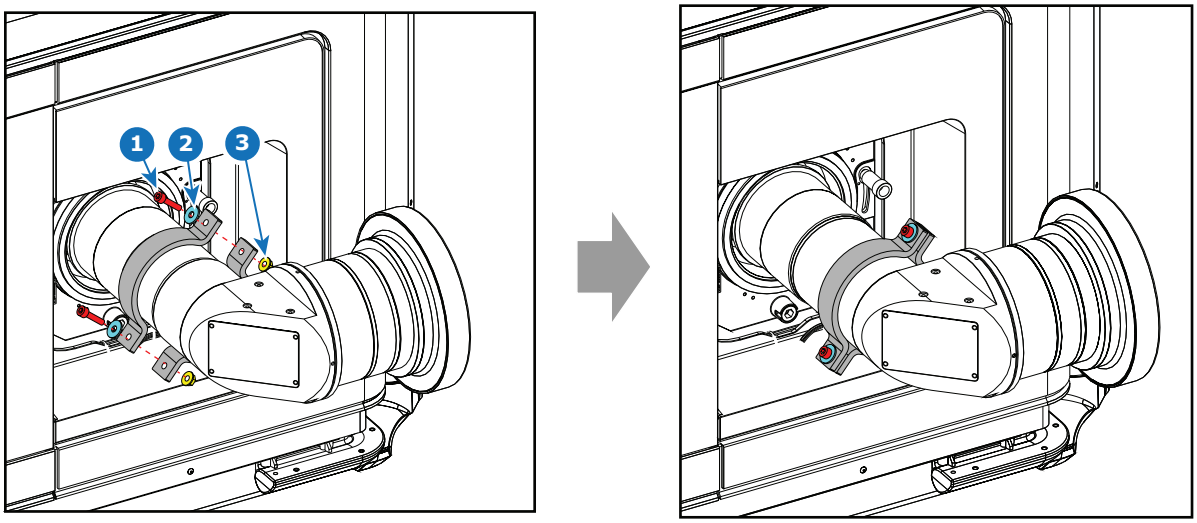


Image 4–17 Mount hoop

1 M6 x 25 screw
2 washer D 6,4 D18
3 M6 nut

Tip: Make sure that the lens hoop is mounted under 45°.

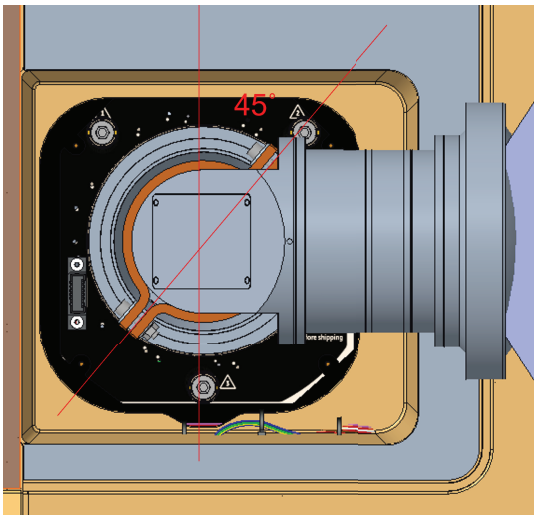


Image 4–18 Mount under 45°

2. Install the top fixation bracket R8798044 on top bar of the projector with two M5 hex screws and M5 washers.

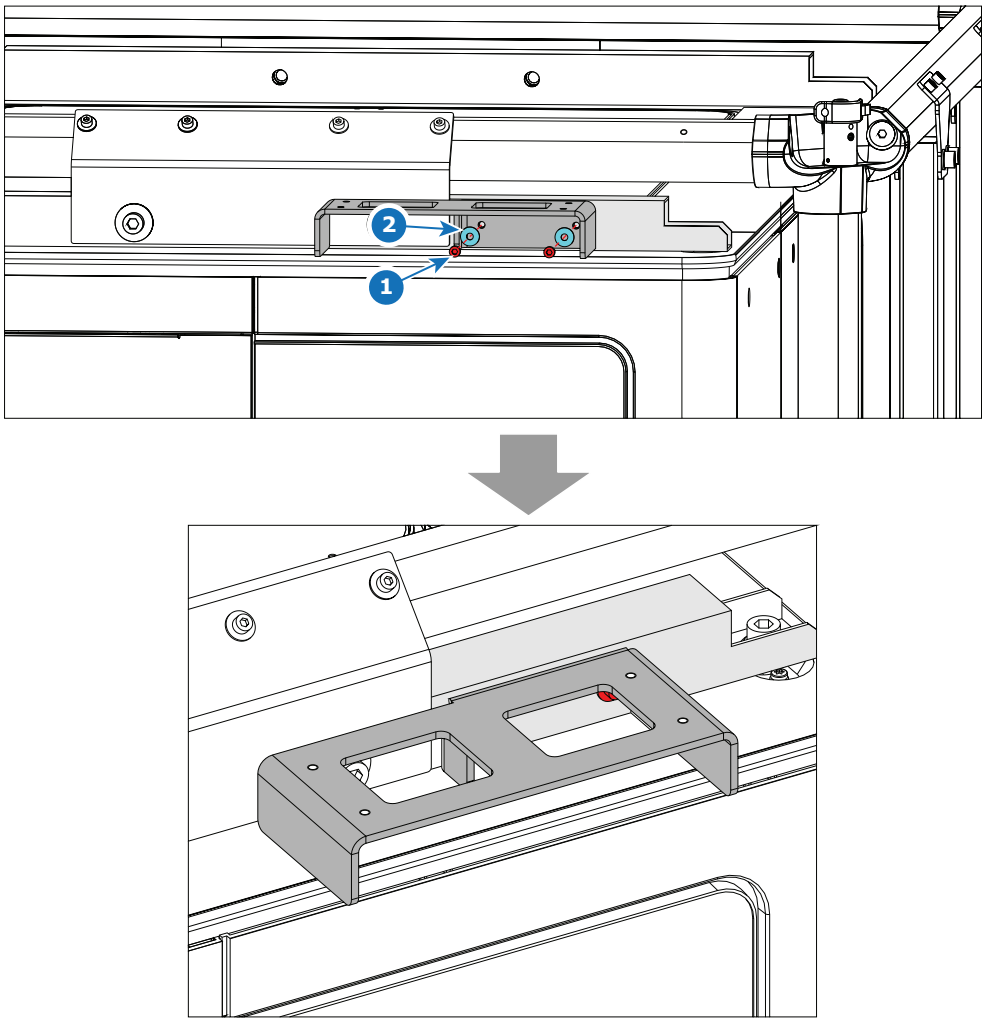


Image 4–19 Top bracket

1 M5x12 hex screw
2 washer D5,3 D15

3. Mount the second top bracket (R8798045) on the previous installed top bracket using four M5 hex screws and washers.

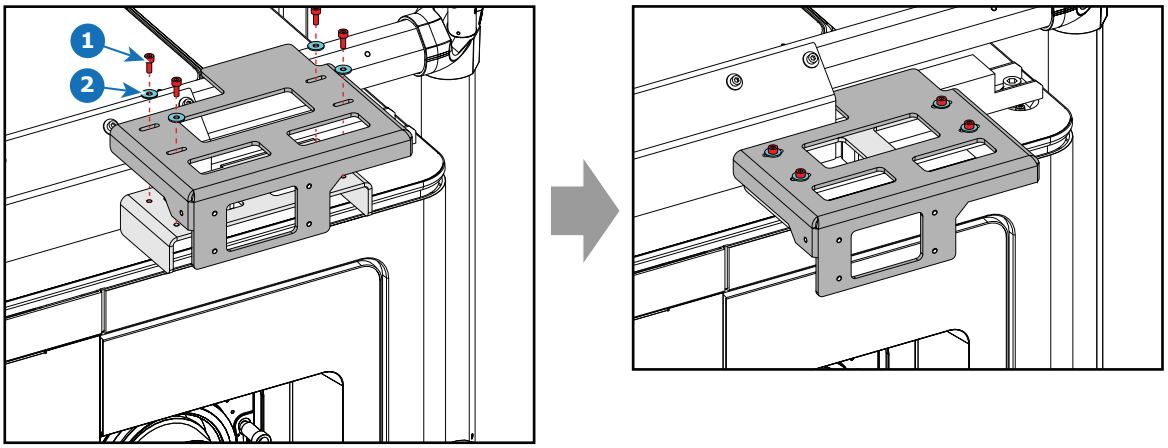


Image 4–20 Second top bracket

1 M5x12 hex screw
2 washer D5,3 D15

4. Fixate the front bracket on the second top bracket using 5 identical screws washers.

   It can be necessary to turn out the positioning knobs a little so that the bracket can be placed over the lens.

   The 5 fixation points are adjustable. It recommended to fix the screws in the middle of the slots. Do not fix very tight. It may needful to adjust later after all parts are in position. The main purpose is to make sure the 4 adjustment points on the bracket are symmetrical to the lens.

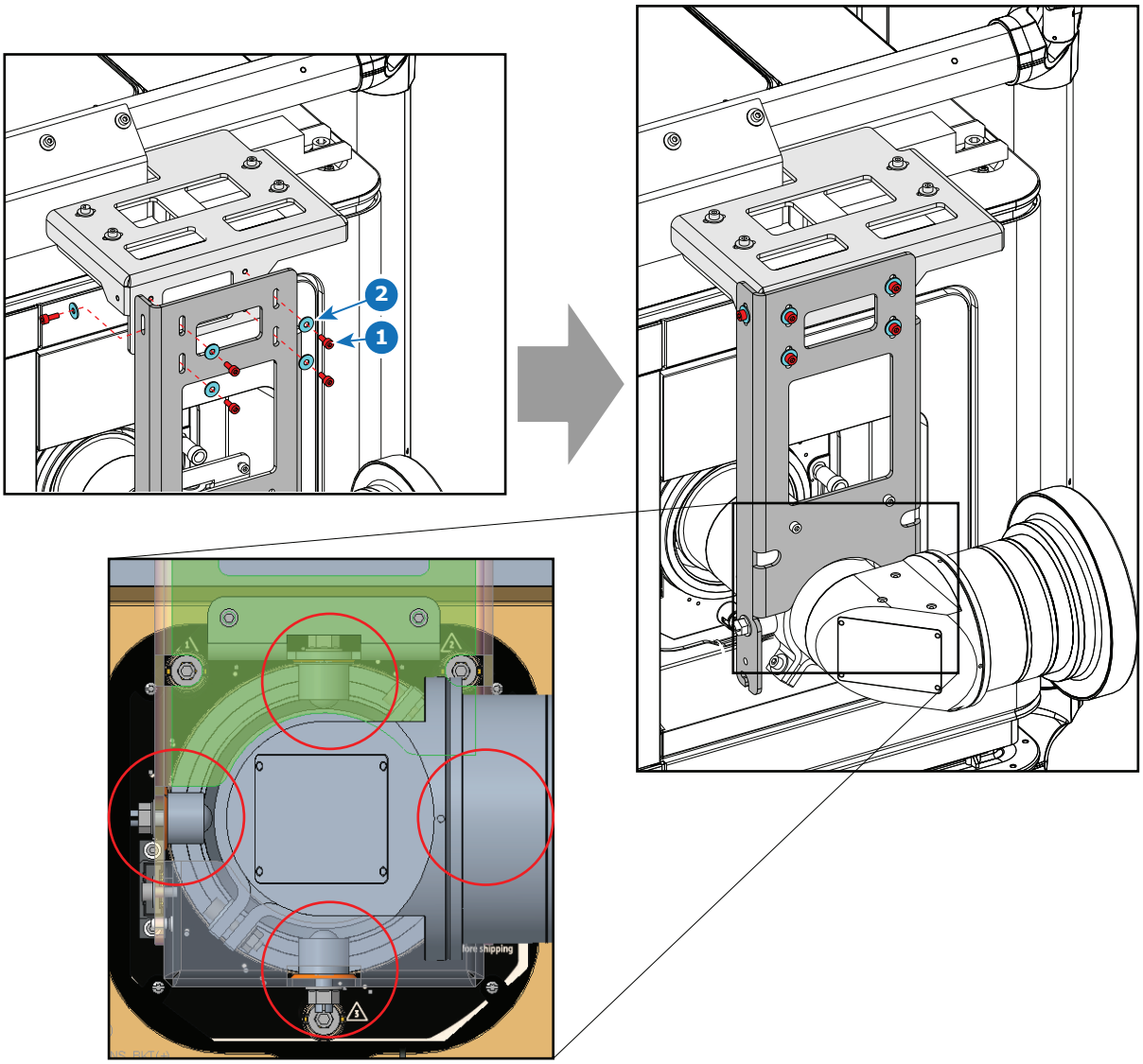


Image 4–21 Mount front bracket

1 M5x12 hex screw
2 washer D5,3 D15

5. Insert the bottom bracket by inserting the pins on both side and turning the bracket to the front until it seats correctly.

   Secure both side with a screw and washer.

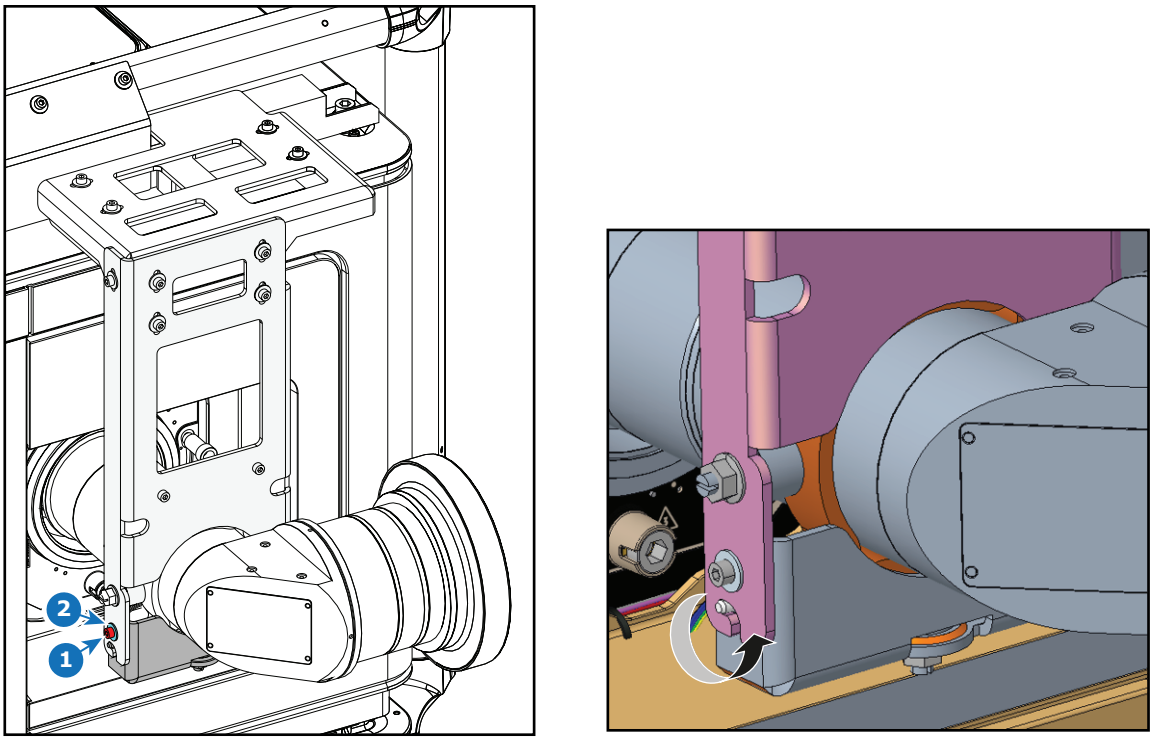


Image 4–22 Bottom bracket

1 M5x12 hex screw
2 washer D5,3 D15

6. Adjust the 4 adjustment points to make sure the lens is correctly positioned. Use a flat screwdriver and turn the positioning knobs against the lens.

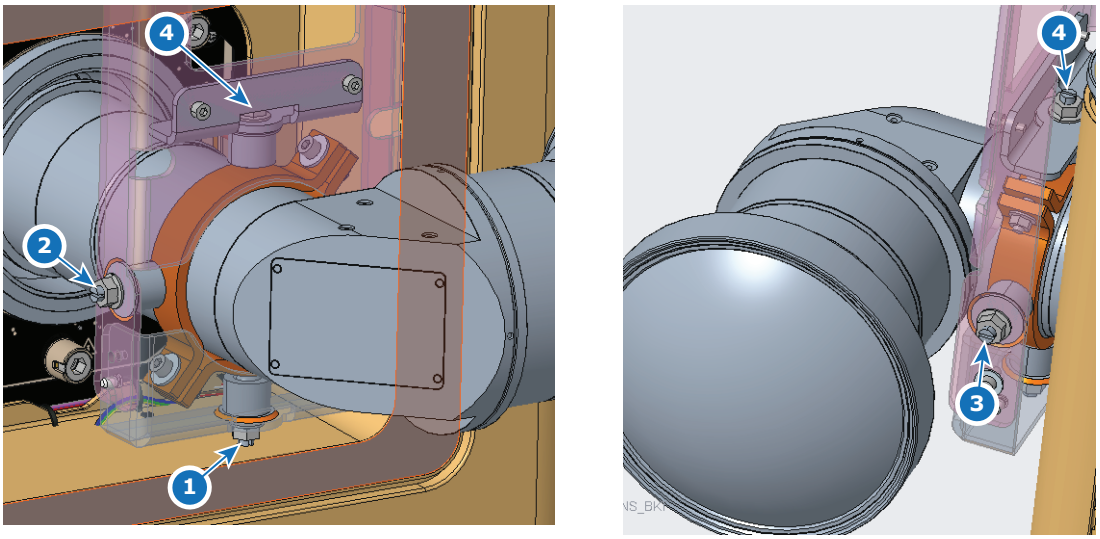


Image 4–23

7. If the lens safety cable is installed on the lens, lock the other side of the cable onto the top bar of the reinforcement frame. For more information on the lens safety cable, see “Installation of the lens safety cable on the UST lens”, page 44.

4.7 Removal of a lens from the lens holder

How to remove

1. Support the lens with one hand while you unlock the lens holder by sliding the lock handle outwards and then towards the “unlocked” position as illustrated (Image 4–24).

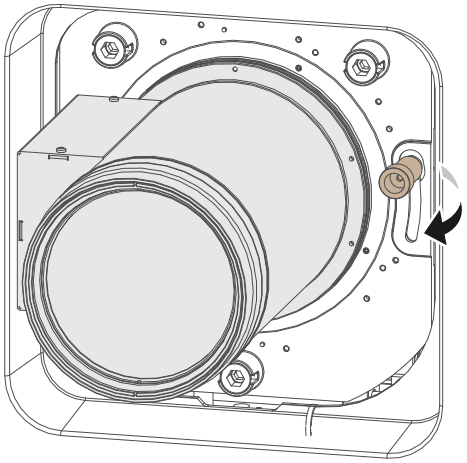


Image 4–24 Unlock the lens

2. Gently pull the lens out of the lens holder.

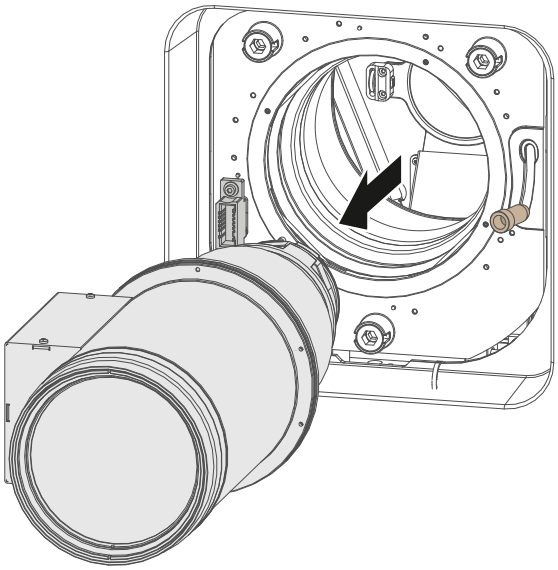


Image 4–25 Lens removal

It's recommended to place the lens caps of the original lens packaging back on both sides of the removed lens to protect the optics of the lens.

It is recommended to place the dust cover of the original projector packaging back into the lens opening to prevent intrusion of dust.

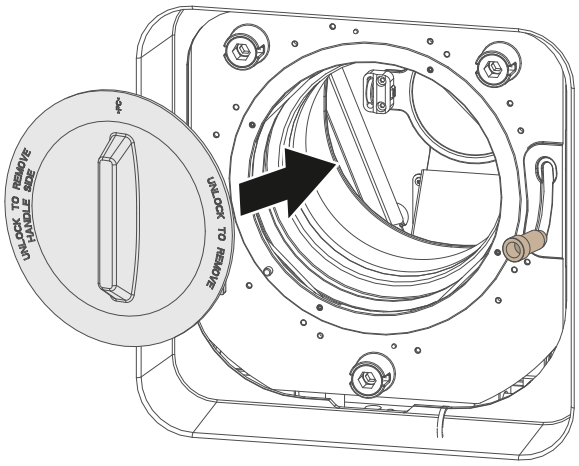


Image 4–26

Installation procedures

5

5.1 Accessing the power connections

CAUTION: Whenever you access the mains board and thus remove the net input cover, make sure the projector is disconnected from the power net.

Required tools

Torx screwdriver T20

How to access

1. Remove the back and power side cover of the projector.
2. Slightly loosen the two screws on the bottom of the net input cover (reference 1, Image 5–1). Use a T20 Torx screwdriver.
3. Lift the net input cover up and away from the projector.

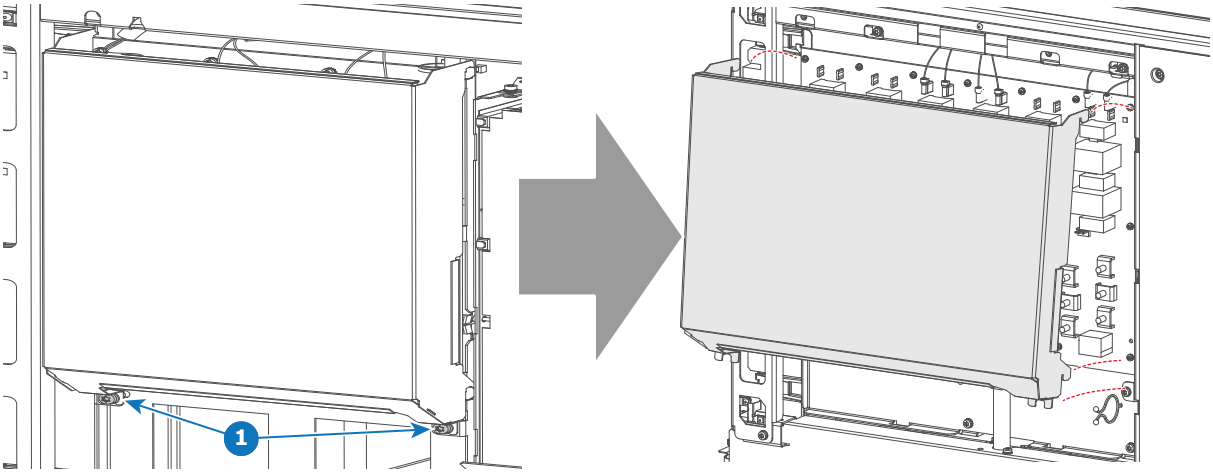


Image 5–1 Removal of the net input cover

5.2 Power input configuration of the projector

About the power input.

The power input of the projector can be configured in one of three different configurations, depending on the local power supply:

- In a **Y configuration** (3W+N+PE) for a three phase power supply of 200-240 V / 346-415 V. In this configuration, 346-415 V is measured between the lines while 200-240V is measured between the lines and the neutral.
- In a **Δ configuration** (3W+PE) for a three phase power supply of 200-240 V. In this configuration, 200-240 V is measured between the lines.
- In a **mono phase configuration** (L1+N+PE) for a mono phase power supply of 200-240 V. In this configuration, 200-240 V is measured between L1 and the neutral (N) or L2.

Before operating the projector, place the links in the correct position depending on the local power supply.

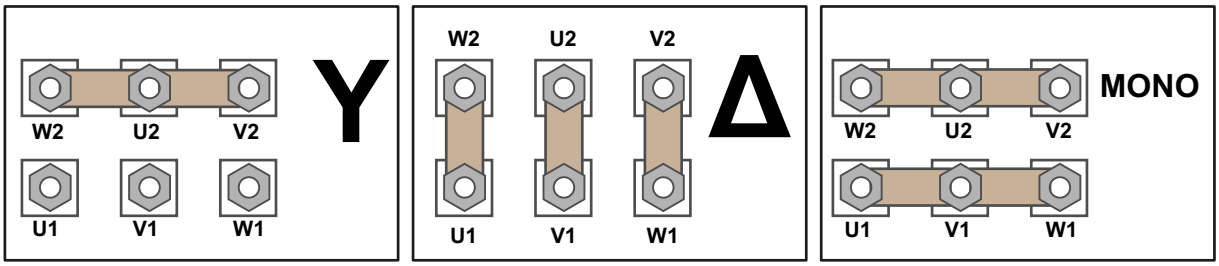


Image 5–2 From left to right: Y configuration, Δ configuration and mono phase configuration

Required tools

- Nut driver 10 mm
- Torque wrench with 10 mm hexagon socket

How to switch configurations

1. Loosen the top nuts on all the Y / Δ / mono configuration pins. (U1, U2, V1, V2, W1 and W2). Use a 10 mm nut driver.

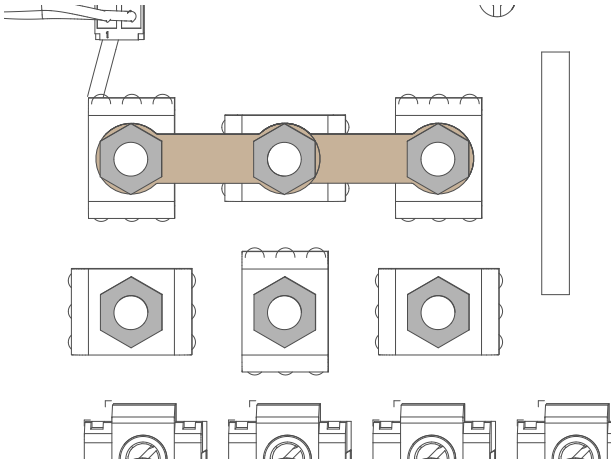


Image 5–3

2. Take off the four mounted links (A, B, C and D).
3. Mount the links as illustrated, depending on the configuration:
   1. **Y configuration**: Connect the upper pins with each other. Place two links between each pin (do not remove them).

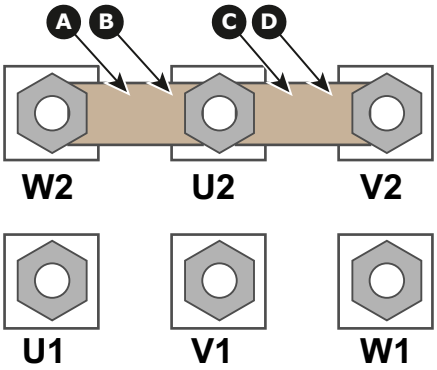


Image 5–4 Y configuration

2. **Δ configuration**: Connect the upper pins with the bottom pins as illustrated. Place two links between pin W2 and U1 (A and B).

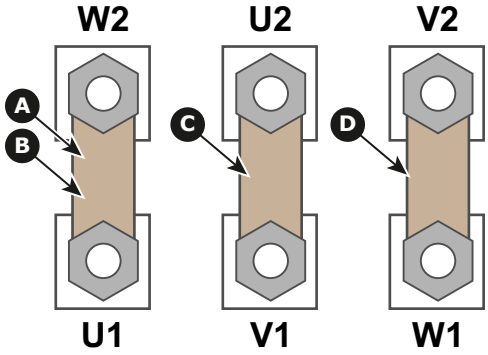


Image 5–5 Δ configuration

3. **Mono phase configuration**: Spread the four links over the six pins as illustrated. Make sure both the upper and lower pins are connected with each other.

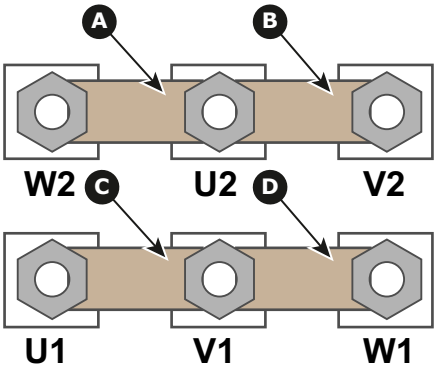


Image 5–6 Mono phase configuration

4. Turn a nut on each pin and secure with a torque wrench set to **3.5 Nm**.

5.3 Connecting the projector with the power net

WARNING: The total electrical installation should be protected by an appropriate rated and readily accessible disconnect switch, circuit breakers and ground fault current interrupters. The installation shall be done according to the local electrical installation codes.

CAUTION: ALL POWER CONNECTIONS to the XDX projector are made to the five-terminal strip located on the mains board behind the operator side cover and mains cover of the projector.

CAUTION: The cross-sectional area of the conductors in the Power Supply Cord shall be not less than 4 mm² or AWG 10.

Required tools

- Flat screwdriver
- Open-end wrench 36 mm
- Torx screwdriver T20

Required parts

- Certified AC power supply cord 4 mm², 10 AWG, min. 300 V (in case of mono phase or Δ configuration)
- Certified AC power supply cord 4 mm², 10 AWG, min. 500 V (in case of Y configuration)

How to connect the main AC power with the projector

1. Make sure the net input cover has been removed. For more info, see “Accessing the power connections”, page 54.
2. Guide the AC power cord (reference 2) through the cable gland (reference 3) and to the left side with the removed power cover.
3. Connect the wires (references 4 - 6) to the 5–terminal strip as illustrated. Use a torque screwdriver to fasten the screws of the 5-terminal strip with a torque of **3.3 Nm**.

Warning: Always connect the PE wire (reference 4) first, then the other wires.

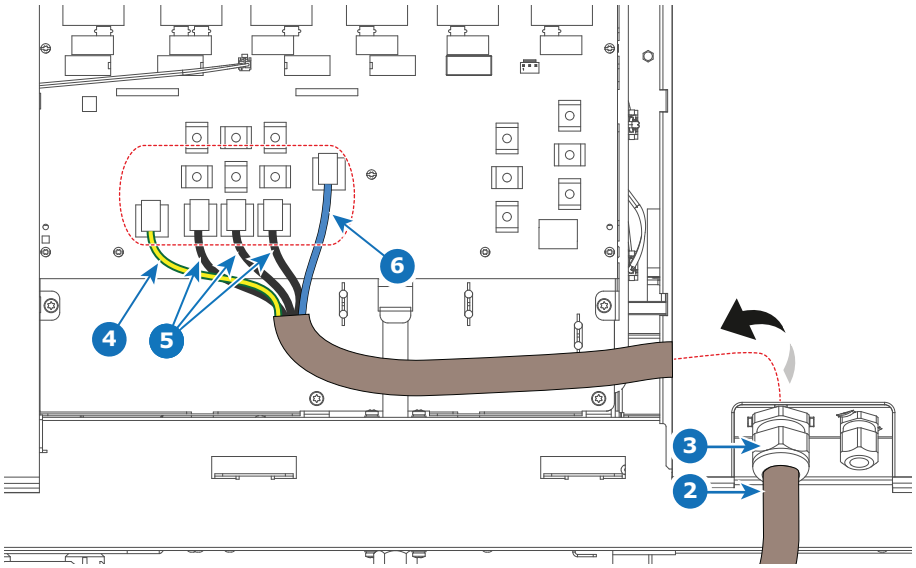


Image 5–7 Examole of the power wiring

2 AC Power cord
3 Cable gland
4 Protected Earth (PE) wire
5 Phases wiring (L1 - L3)
6 Neutral (N) wire

Tip: Check for good fixation by pulling on each wire.

Tip: In case of mono phase wiring (which only has L, N and PE), The L wire should be connected to the rightmost of the three phase terminals (reference 5). However, ensure that you correctly connect the PE (reference 4) and the neutral wire (reference 6).

4. Secure the AC power cord by fastening the cable gland (reference 3). Use a 30 mm open-end wrench.
5. Place the net input cover back and seal it. Tighten the two screws (reference 1), using a T20 Torx screwdriver.

5.4 Connecting a UPS with the projector electronics

WARNING: Only use UPS units which are suitable for the XDX series projector. See chapter *Installation requirements*, for more information about the requirements of the UPS.

CAUTION: The electrical connection with the UPS INLET socket of the projector must be done with a certified AC power supply cord (minimum 1.50 mm² or 14 AWG and minimum 300V)

The projector is configured by default for use without UPS.

Required tools

- Torx screwdriver T20
- Flat screwdriver
- Open-end wrench 24 mm
- Nut driver 10 mm
- Torque wrench with 10 mm hexagon socket

Required parts

Certified AC power supply cord 1.5 mm², 14 AWG, min 300 V

How to connect a UPS unit with the projector electronics?

1. Make sure the net input cover has been removed. For more info, see “Accessing the power connections”, page 54.
2. Loosen the top nuts on the six UPS configuration pins. Use a 10 mm nut driver.

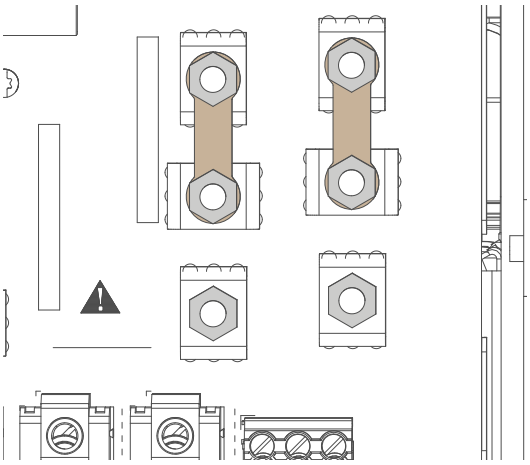


Image 5–8

3. Replace the links as illustrated.

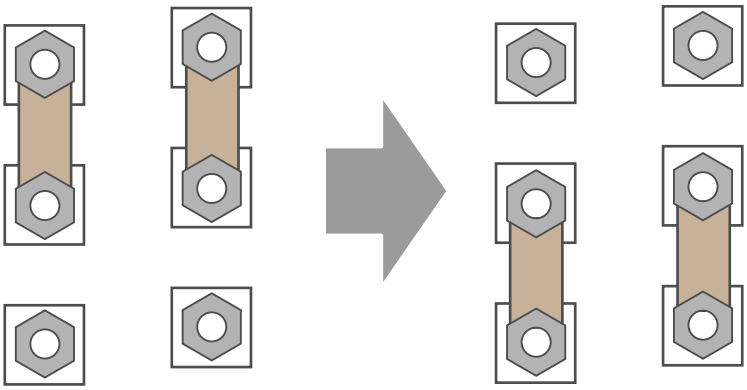


Image 5–9

4. Guide the AC power cord (reference 2) through the cable gland (reference 3). Connect the wires (references 4 and 5) to the 3-terminal strip as illustrated. Use a torque screwdriver to fasten the screws of the 3-terminal strip with a torque of **0.75 Nm**.

Warning: Always connect the PE wire (reference 4) first, then the other wires.

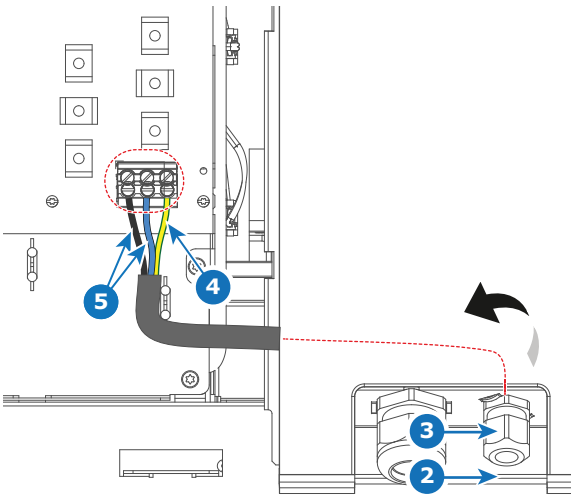


Image 5–10

2 UPS Power cord
3 Cable gland
4 Protected Earth (PE) wire
5 Power wires L and N

Tip: Check for good fixation by pulling on each wire.

5. Secure the AC power cord by fastening the cable gland (reference 3). Use a 24 mm open-end wrench.
6. Place the net input cover back and seal it. Tighten the two screws (reference 1), using a T20 Torx screwdriver.

5.5 Suspending the projector from a truss

WARNING: It is the responsibility of the installer to suspend the reinforcement frame in a safe and secure fashion. Safety cables must be applied according to local regulations and standards. Safety cables must be dimensioned for the applicable load and no drop distance is allowed or must be limited as much as possible.

WARNING: When the projector is suspended from a truss, a minimum of four (4) clamps must be used to secure the projector. The clamps must be fixed to the projector frame. Use clamps and a truss which is capable of handling five (5) times the complete load of the system).

About the reinforcement frame

A reinforcement frame has been provided to the XDX projector to make the projector more rugged and handy.

Furthermore, while the projector is not foreseen to be suspended from the ceiling, the multifunctional frame allows the projector to be suspended from a truss. This can be done either in a upright or sideways position. Take into account the tilt ranges of the projector when mounting the projector.

Installation requirements for projector suspension

The projector can be suspended from a truss by using the reinforcement frame. While doing so, take the following requirements into account:

- You can only use swivel coupler double clamps for truss beams. The number of clamps required depends on the types of clamps used. Always make sure you use at least four clamps: two clamps at two opposed sides of the frame.

Image 5–11 Examples of swivel coupler double clamps

- Take into account the total weight of projector and frame suspended from the truss. For the XDX, the working load limit for each clamp must be bigger than 269 kg (593 lbs).
- The clamps can only be placed on the round profiles of the reinforcement frame. It is not allowed to mount clamps on the rectangular brackets of the reinforcement frame.
- Mount the clamps and safety cables on the longest bars on the upper side of the reinforcement frame (the side facing the truss).
- It is not allowed to suspend the projector itself, only the reinforcement frame can be suspended.
- Single point hangers and “single point of connection” suspension cannot be used.

How to suspend from a truss

1. Measure the distance between the two used support bars of the truss beam, using the center tube as reference.

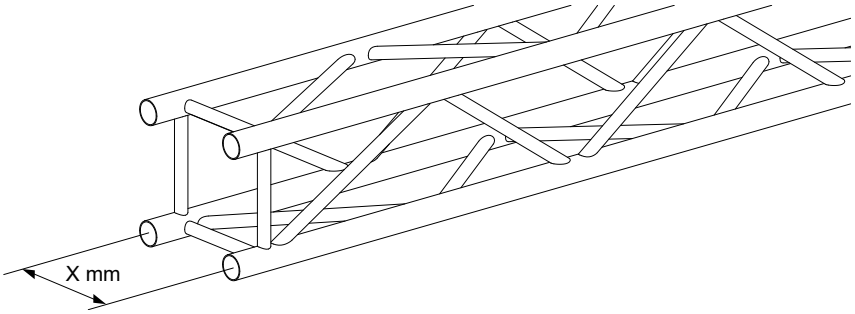


Image 5–12 Example of truss

2. Install the rigging clamps on the side of the projector frame that will face the truss and on the longest frame bars. Turn the projector if necessary. Install the rigging clamps, according the measured distance and secure this position. Ensure that the rigging points are symmetrically lined up, so that the projector will hang in balance.

   Warning: Use a minimum of four (4) rigging points, equally spread, to suspend the projector. Make sure the clamps are capable of handling five (5) times the complete load of the system.

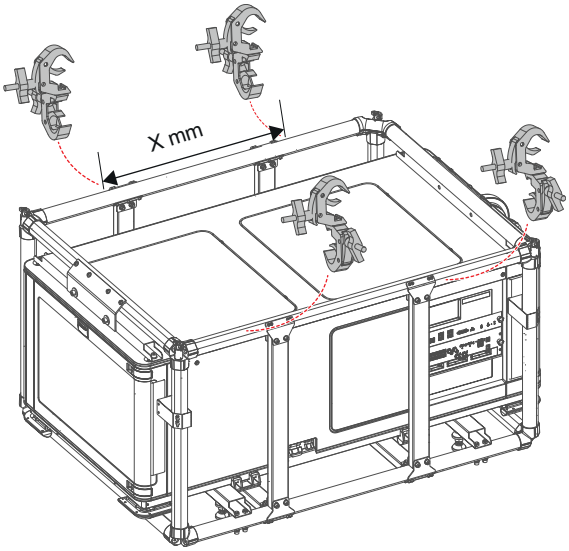


Image 5–13

3. Place the projector under the truss installation with the clamps facing upwards. Lower the truss until the support bars of the truss are close enough to connect the rigging clamps.

   Warning: Always secure the rigging points after adjustment.

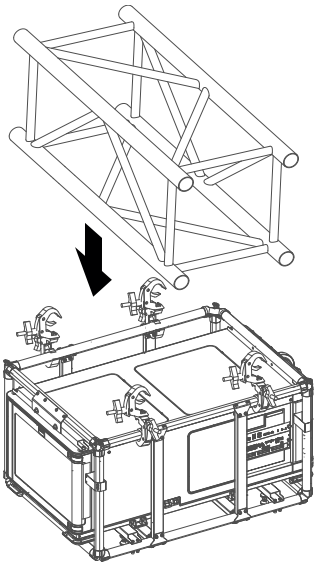


Image 5–14 Example of mounting to truss

4. Lock all four rigging clamps.
5. Secure the reinforcement frame and truss installation using safety cables.

   Warning: Make sure the safety cables are mounted on the longest bars on the side of the frame that faces the truss beam (the same bars as used for the clamps).

   Warning: Make sure all safety cables are applied according to local regulations and standards. Safety cables must be dimensioned for the applicable load and no drop distance is allowed or must be limited as much as possible.

6. Lift up the truss with the attached projector to the desired height.

Input & communication

6

About this chapter

This chapter describes the functionality of the touch display, as well as the different input and communication ports of your projector.

6.1 Introduction

General

The Input & Communication side of the XDX consists of a touch display and a card cage with three slots. The touch display also functions as the “tail light”, which reflects the status of the projector.

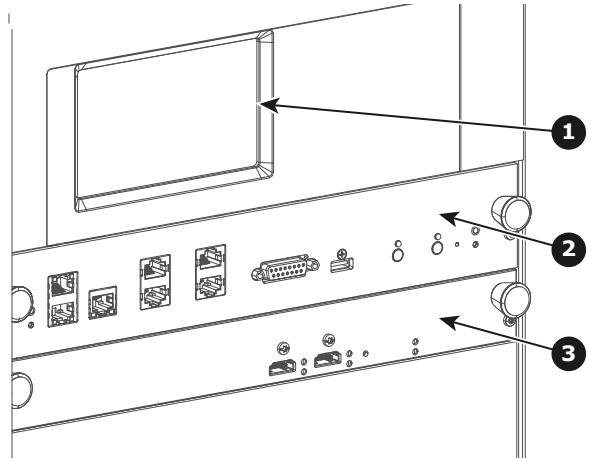


Image 6–1

1 Touch Display
2 Barco Controller
3 Barco ICP-D

6.2 controller of the projector

Control panel

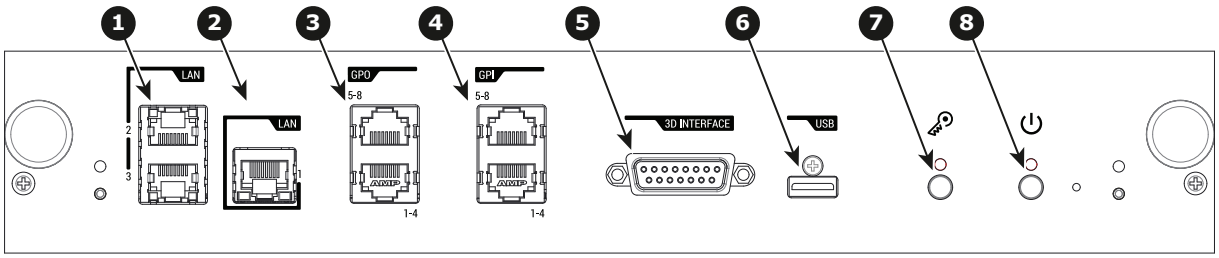


Image 6–2

1 LAN ports
2 Wide Area Network (WAN) port
3 General Purpose Output (GPO) ports
4 General Purpose Input (GPI) ports
5 3D Interface
6 USB port
7 Key button
8 Power button

Local Area Network (LAN: 10/100/1000 base-T) ports

The Controller has two Local Area Network (LAN: 10/100/1000 base-T) ports with a built-in Ethernet switch (port 1 and port 2). Use for projector control and automation. E.g. Touch display, content server, ... (not for content streaming!)

As there is a need to daisy chain projectors when they are on an Ethernet network, an Ethernet switch is built in. the incoming network is hereby available for the internal PC and for the next device in the chain. In this way a 'star' network interconnection can be avoided. The switch used is a stand alone 10/100/1000Mbit Ethernet switch. This assures no influence on the network speed. Furthermore, this Ethernet switch remains operational when the projector is in Standby mode.

The connectors used for these Ethernet ports are of the type RJ45, which is compatible with standard RJ45 cable connector. Straight (most common) as well as cross linked network cables can be used. The 2 ports are functionally identical. Both ports are connected via the projector switch (Auto sensing enabled).

Wide Area Network (WAN) port

The Cinema Controller has a Wide Area Network (WAN: 10/100/1000 base-T) port. Use this Ethernet port (reference **2** Image 6–2) to connect the network which contains the DHCP server.

The XDX can be connected to a WAN (Wide area network) (reference **2** Image 6–2). Once connected to the WAN, users can access the projector from any location, inside or outside (if allowed) their company network using the Web Communicator software. This software locates the projector on the network if there is a DHCP server or the user can insert the correct IP-address to access the projector. Once accessed, it is possible to check and manipulate all the projector settings. Remote diagnostics, control and monitoring of the projector can then become a daily and very simple operation. The network connectivity allows detection of potential errors and consequently improves service time.

General Purpose Input / Output (GPI & GPO) ports

These ports can be used to send or receive trigger signals from other devices. These input/output ports can be programmed by macros created with the Web Communicator application. For more info, refer to the Web Communicator user guide, section Macro editor.

The GPI ports remains operational when the projector is in Standby mode. So if the factory predefined macro to wake up the projector is assigned to one of the free GPI port numbers the projector can be awakened via GPI.

The GPI ports accept a power input of maximum +18V.

3D Interface port

The 3D interface port can be used to connect external 3D devices to the projector. All signals necessary for 3D projection can be provided via this connector.

The 3D interface port is disabled if the projector is in ECO mode.

USB port

The Cinema Controller is equipped with a master USB port, type “A” connector. This USB port will simplify the service procedures for firmware updates or for downloading the log files without a network connection.

If the only file on the USB device is the firmware file (a “*.fw” file), the projector will automatically start one of the following processes.

- **samba<version nr>.fw**: The projector will upgrade or downgrade, depending on the version number.

Make sure that any used USB-stick is FAT32 compatible and contains no other files or folders.

6.3 ICP-D

About the ICP-D

The ICP-D has the following functions:

- Stores a part of the projector files (screen files, MCGD files, ...).
- Stores the license files related to HDMI inputs.
- Stores and generates test patterns.
- Scaling to native resolution, re-sizing, masking, line-insertion de-interlacing, color space conversion, de-gamma, color correction.
- Source Selection.
- Contains a real time clock.

LEDs and inputs on the ICP-D

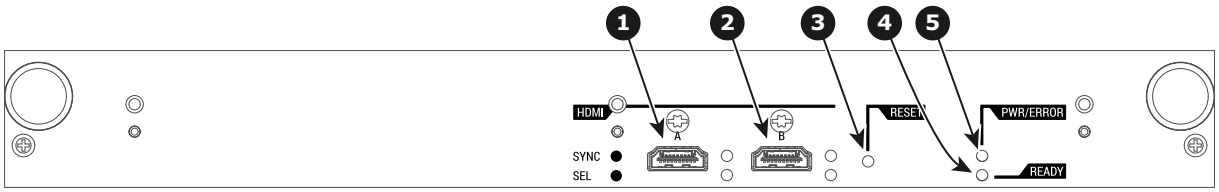


Image 6–3

1 HDMI Input A
2 HDMI Input B
3 Reset button
4 Ready LED
5 Power & Error LED

For the specifications on the HDMI ports, please refer to the appendices of the ICP-D installation manual.

ICP-D LEDs

Status overview PWR/ERROR and READY LEDs:

PWR/ERROR	READY	ICP-D Status
Off	Off	Turned off
Red	Off	Board reset or security error
Blinking Green	Off	Boot loader
Blinking Green	Blinking Orange	Operating System start up
Blinking Green	Orange	Security Manager - Image Integrity tests
Blinking Green	Blinking Yellow	Security Manager - Self Test
Green	Blinking Green	Starting Applications
Green	Green	Applications started in normal mode
Green	Orange	Applications started in degraded mode
Blinking Red	Off	Security error
Green	Blinking Orange	Update ongoing
Orange	Orange	Update done

When installing a new ICP board in a XDX projector the Spatial Color Calibration file must be reloaded and activated.

CAUTION: Make sure not to short circuit the battery on the board. That will destroy the board completely !

Starting the projector for the first time

7

About this chapter

This chapter contains the Switch ON and Switch OFF procedures for the XDX projector. These procedures highlight all important points to be checked prior to switching the projector ON. This is to ensure a safe startup of the projector.

7.1 Explaining the power states

Power states explained

The projector can have one of several power states, which you can recognize by the state of the power LED.

Projector Power State	Behavior	Power LED
Mains power off	Projector is not powered	Off
OFF mode	The power button and GPI3 are powered (for remote power-on).	Slowly blinking RED
ECO mode	Projector IP connection is active; touch display and image processing are off.	Full RED
READY mode	Projector is fully powered and active; touch display is on (if available), Web Communicator is active and light is OFF.	Full GREEN
ON mode	Projector is fully powered and active; touch display is on (if available), Web Communicator is active and light is ON.	Full GREEN
Going to ECO mode	Turning electronics and light source OFF.	Blinking green

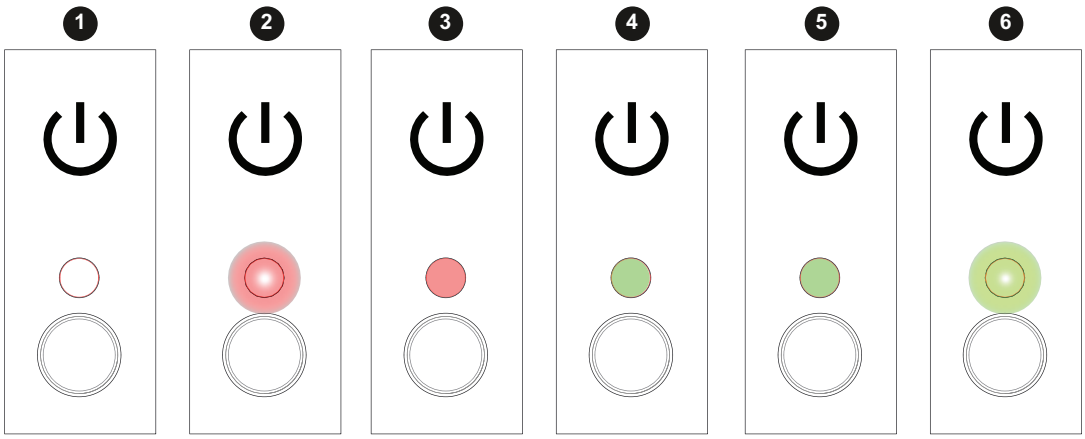


Image 7–1

1 Mains power off
2 OFF mode
3 ECO mode
4 READY mode
5 ON mode
6 Going to ECO mode

Switching between power states

You can change power state by using one of the following options:

- Pressing the Power button on the Cinema Controller (reference 1)
- Sending a wake-up signal to the GPI3 input for more than 0.5 seconds, but less than 2 (reference 2).[3]
- Using the *ECO* menu on the touch display (if available).
- Using the *Power* menu in Web Communicator.

3. GPI3 works the same way as the power button. Thus take into account that sending a signal for more than 6 seconds will turn the projector OFF instead.

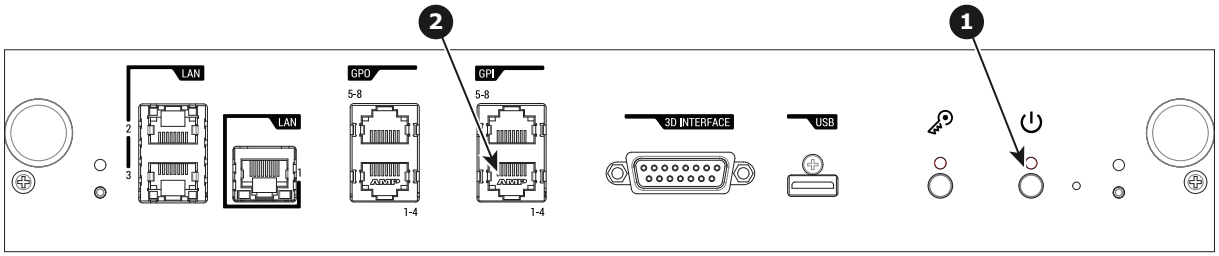


Image 7–2 Location of the Power button and GPI 1-4 input on the Cinema Controller.

Power state diagram

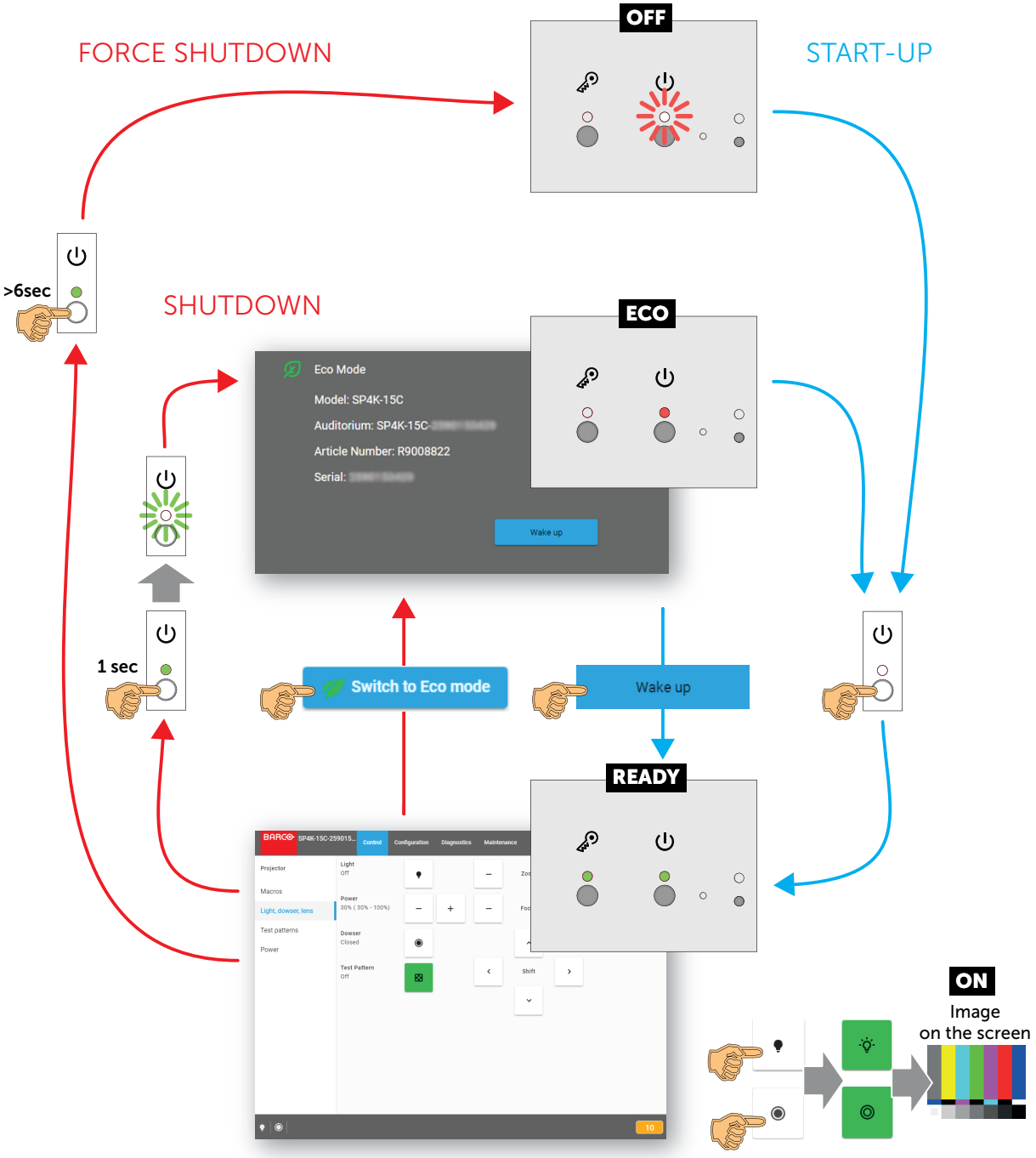


Image 7–3 Power State diagram

7.2 Switching the projector ON

Possible ways to switch on

There are multiple ways to switch on the projector, depending on a few factors:

Current Power Stage	How to power on	Notes
OFF	• Locally, using the power button • Remotely, using GPI3	After the projector is powered, you can further access the projector using either Web Communicator or the optional touch display.
ECO mode	• Locally, using the power button and touch display[4] • Remotely, using Web Communicator • Remotely, using GPI3	Take into account that the Web Communicator method can only be used when the projector is in ECO mode.

How to switch on locally, using the touch display?

1. Ensure that the XDX projector is installed onto a stable platform.
2. Ensure the projector is correctly connected to the mains power.
3. Ensure that the correct lens is installed for your application.
4. Press the power button to switch the projector ON.

   The projector will start up and the touch display will start its initialization procedure.
5. Wait until the *Projector control* menu is fully accessible on the touch display.

   Tip: While the menu may become accessible early on, certain icons (e.g. the Light button) may be greyed out until the projector is ready to play.

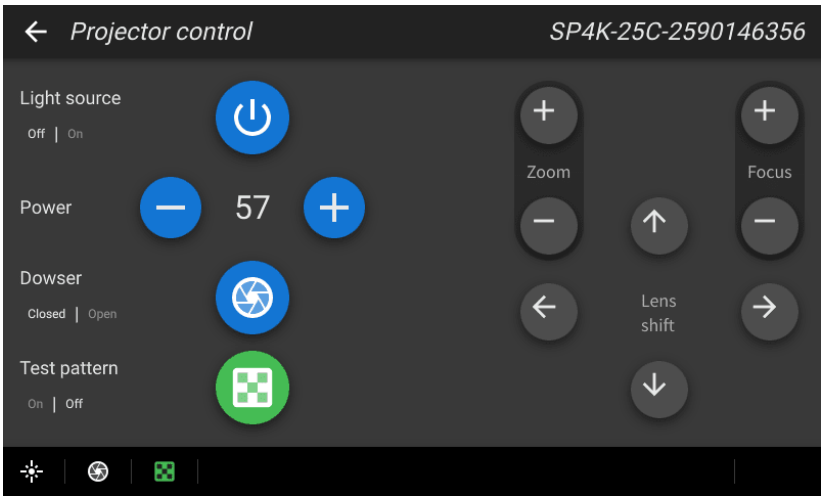


Image 7–4 Example of the Projector control menu on the touch display.

6. Press the **Light** button to activate the light source. Use a press of >1 second.

   The Light source will prepare itself for playing, by doing a laser self-test. This may take a while, depending on your projector variant. While the light source is turning on, the Light button will blink green. Once completed it will be full green.
7. Press the **Dowser** button to open the dowser.

How to switch on remotely, using only Web Communicator?

1. Ensure that the XDX projector is installed onto a stable platform.

4. Only possible if the Touch Display option has been chosen.

2. Ensure the projector is correctly connected to the mains power.
3. Ensure that the correct lens is installed for your application.
4. Browse to the IP address of the projector, using the http protocol.

   With the projector in ECO mode, you will be redirected to the ECO mode page.

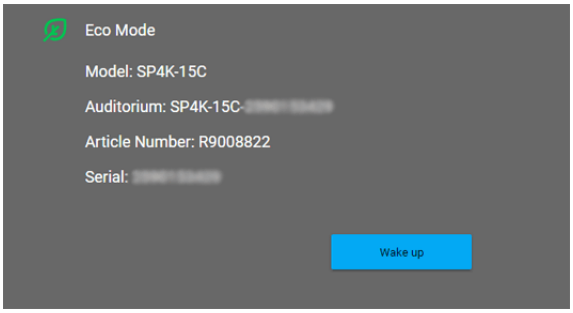


Image 7–5 Example of the Eco Mode page in Web Communicator

5. On the Eco mode page, press **Wake up**.

   The projector will start up. Once it has fully started up, you will be redirected to the login page of Web Communicator.
6. Once the login page becomes available, log in to the projector.

   Once logged in, you will be redirected to the *Light, dowser, lens* menu.
7. In this menu, press the **Light** button to activate the light source. Use a press of >1 second.

   The Light source will start warming up.
8. Press the **Dowser** button to open the dowser.

How to switch on remotely, using only GPI3?

1. Ensure that the XDX projector is installed onto a stable platform.
2. Ensure the projector is correctly connected to the mains power.
3. Ensure that the correct lens is installed for your application.
4. Ensure that the GPI port is connected to a supported automation controller (e.g. a JNIOR device).
5. Send a signal to GPI3 for more than 0.5 seconds (but less than six seconds).

Tip: GPI3 works in a similar fashion to the power button. So sending a signal for six seconds or more will force the projector OFF instead.

CAUTION: See the User Guide of the projector to operate and control the projector.

7.3 Connecting to the projector for the first time

Default settings

If you want to access Web Communicator, take into account the following default settings of the projector.

By default you will be able to access Web Communicator using the following default settings.

Item	Setting
IP address	192.168.100.2
Subnet mask	255.255.255.0
Default gateway	192.168.100.1
Default hostname	[projector model] - [serial number]

How to connect?

1. On the touch display of the projector, press either *About*, or *Settings* to see the IP address assigned to the projector.
2. Use a web browser to browse to the assigned IP address.
   The login page of Web Communicator will be displayed.
3. Log in onto Web Communicator.

Default passwords Web Communicator

When logging in for the first time, use one of the following default passwords

User group	User name projector	Default password	User name ICMP	Default password
Administrator	admin	Admin1234	admin	Admin1234
Service technician	st	Service1234		
Show manager	show	Show1234	show	Show1234
Projectionist			proj	Proj1234

For security reasons, it is advised to change these passwords as soon as possible after your projector has been configured.

7.4 Switching the projector OFF

Putting the projector in ECO mode is thé preferred method of shutting down the projector after a day of playing. Only switch the projector to OFF if technical problems have occurred.
Take into account that you can **not** start the projector remotely when the projector has been switched OFF. You can only power it using the power button.

How to put the projector in ECO mode, using the touch display?

1. In the main menu of the touch display, press on the ECO button.

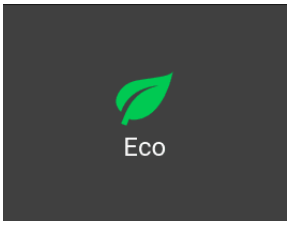


Image 7–6

2. In the Eco menu, press “Switch to ECO mode”. Press for more than one second.

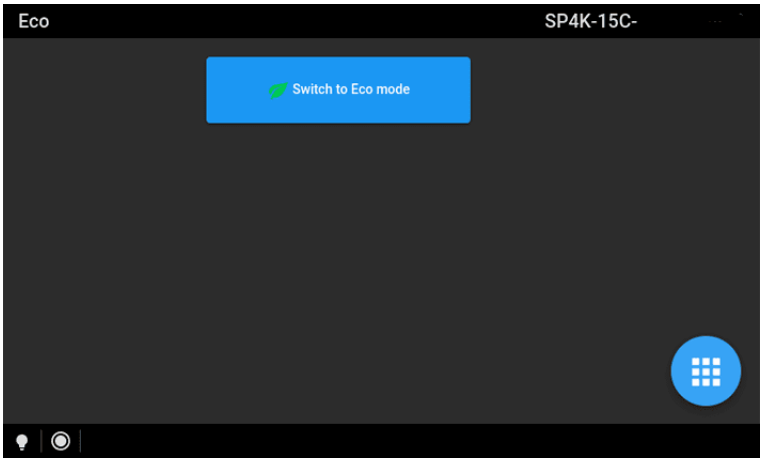


Image 7–7 Example of the ECO menu on the touch display

How to put the projector in ECO mode, using the Web Communicator?

1. In the Communicator, browse to *Control >> Power*.
2. In the Power menu, press **Switch to ECO mode** and confirm.

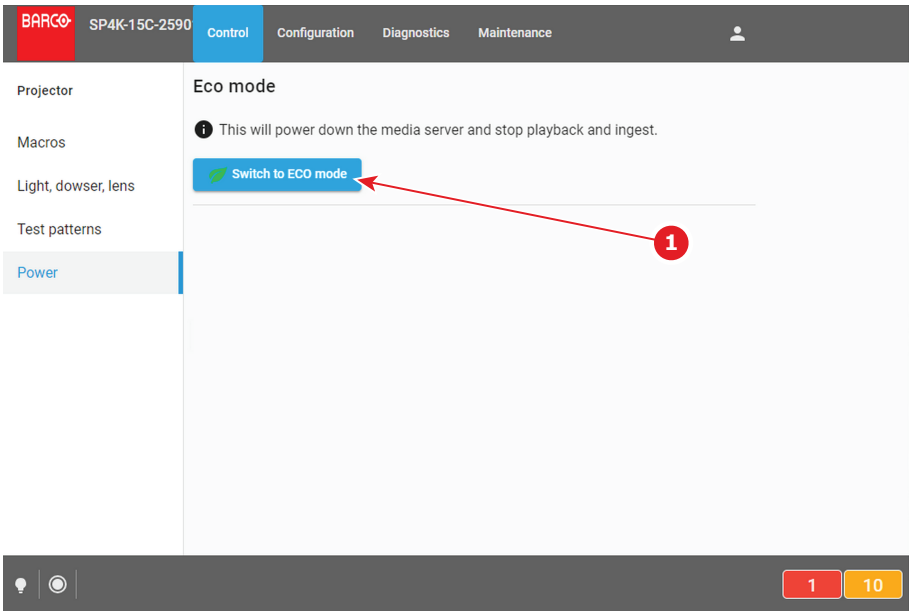


Image 7–8

How to turn the projector OFF?

1. Press the power button for more than six seconds. The projector will go to OFF mode.

   or

   Send a signal via GPI3 for more than six second. The projector will go to OFF mode.

7.5 Software update

How to update the software

1. Download the latest firmware from the Barco website. Click on *myBarco* and login to get access to secured information. Registration is necessary.

   If you are not yet registered, click on *New to myBarco* and follow the instructions. With the created login and password, it is possible to login where you can download the software.

   Note: Keep in mind to unzip the package. Only *.fw files can be selected for software updates.

2. Make sure the projector is powered on and is in READY mode.
3. Browse to the Web Communicator application and log in as administrator.
4. Click on tab **Maintenance** and select **Software update**.
5. In the Software Update menu, click *Browse for a package to install*.

   An *Open* browse window is prompted.

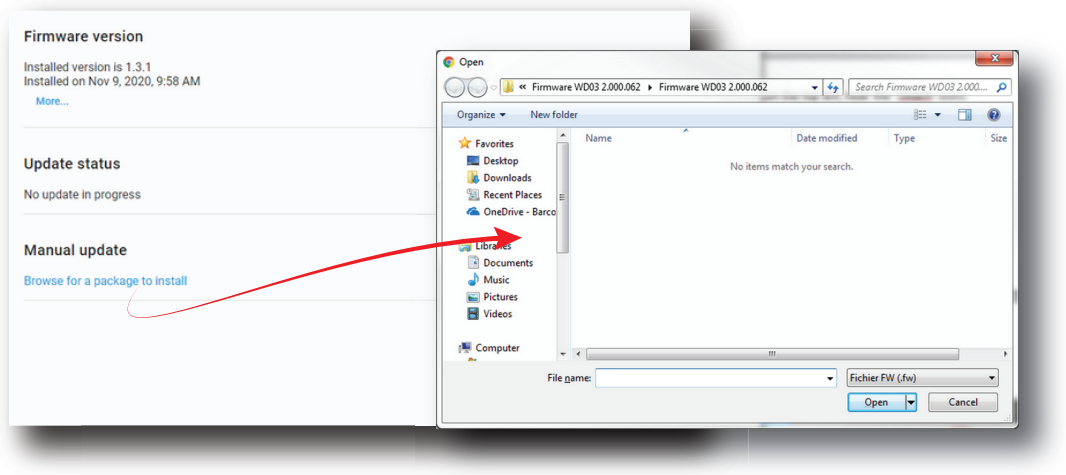


Image 7–9

6. Select the file downloaded from the Barco website.

   The selected file will be mentioned under *Manual update*.

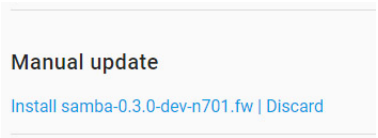


Image 7–10 Example of an update package

7. Click Install and confirm.

   The software update will start.

How to update the software via USB device

1. Download the latest firmware from the Barco website. Click on *myBarco* and login to get access to secured information. Registration is necessary.

   If you are not yet registered, click on *New to myBarco* and follow the instructions. With the created login and password, it is possible to login where you can download the software.

   Note: Keep in mind to unzip the package. Only *.fw files can be selected for software updates.

2. Make sure the projector is powered on and is in READY mode.

3. Browse to the Web Communicator application and log in as administrator.
4. Click on tab **Maintenance** and select **Software update**.
5. Plug a USB device with the downloaded file into the USB port of the Cinema Controller.

   Note: The USB device should be formatted in FAT-32. It may only contain the firmware file in the root level of the device.

   The USB device will be detected and a window will prompt in the Web Communicator.
6. Click Proceed to have the image added in the Manual update section of the page.

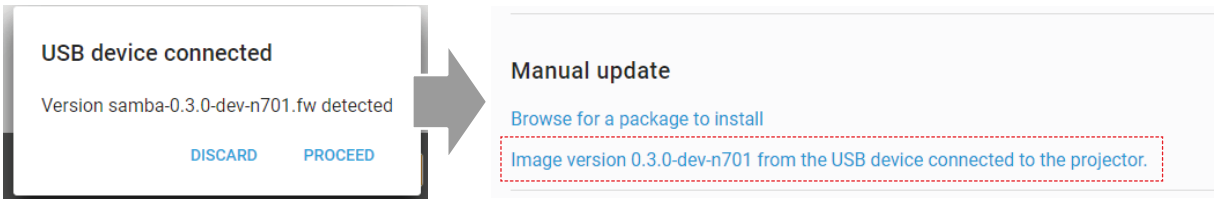


Image 7–11 Example of a software package inserted via USB device

7. Click "*Image [name] from the USB device connected to the projector*" and confirm.

   The software update will start.

Update progress

The update will proceed as follows:

1. The software package will be installed on the projector.

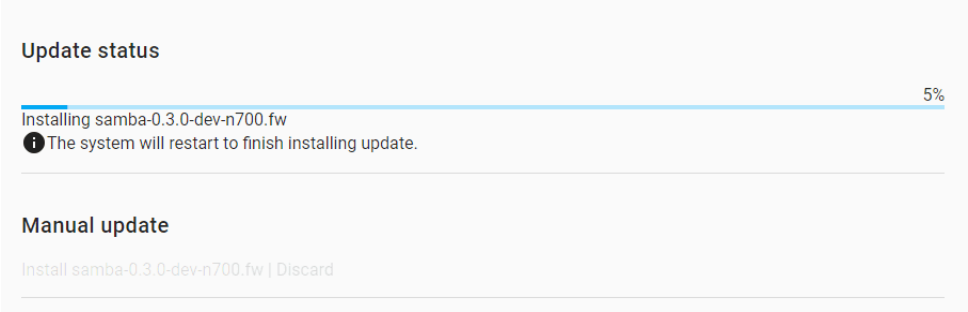


Image 7–12 Example of an update in progress

2. Once the software package has been installed, the following message will be prompted and the projector will reboot.

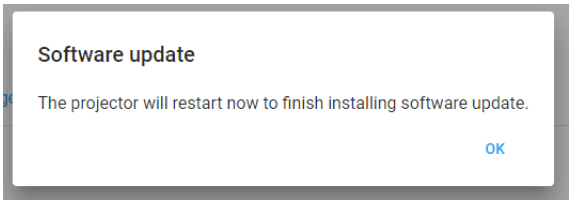


Image 7–13 Example of the prompted reboot message

3. **Take note**: While rebooting, you will lose connection to the projector.
4. Once rebooted, every projector component will be updated to the version included in the software package. Take into account that it might take a while until all components have been updated.

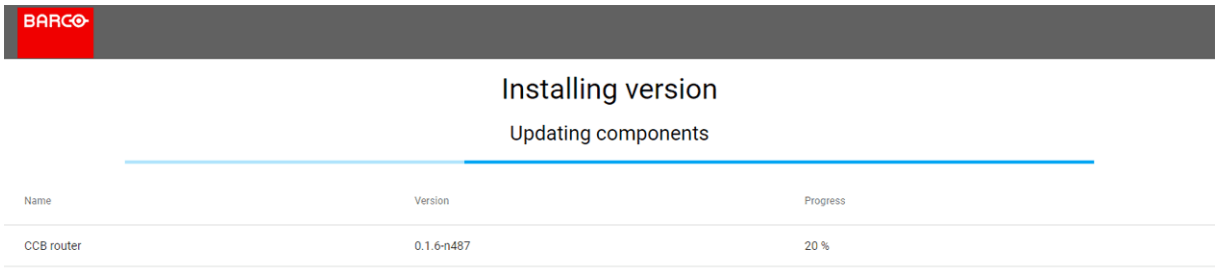


Image 7–14 Example of the components update page.

5. Once every component has been updated, you will be redirected to the Web Communicator login page.

8 Projector covers

About this chapter

Most installation and maintenance procedures demand removing one or more of the projector covers to gain access to the parts. To avoid redundancy, all procedures about cover removing or installing are grouped together in this chapter. The maintenance and servicing procedures also refer to this chapter if required. The procedures in this chapter describe, with detailed step by step actions and illustrations, how to remove or install the projector covers. Note that only the front and rear cover can be removed by trained personnel. All other covers may only be removed by qualified service personnel.

WARNING: All procedures described in this chapter may only be performed by TRAINED PROJECTIONISTS or qualified SERVICE PERSONNEL.

WARNING: Always switch off the projector and unplug the power cord before removing one of the covers, unless otherwise stated.

8.1 Removal of the front cover

If the front cover is the only cover you need to remove (e.g. when checking / replacing the filter), there is no need to turn off the projector.

Required tools

Allen wrench 4 mm

How to remove

1. Unlock the safety bracket on the side of the projector. Use a 4 mm Allen wrench to remove the two hex screws locking the bracket (reference 1).

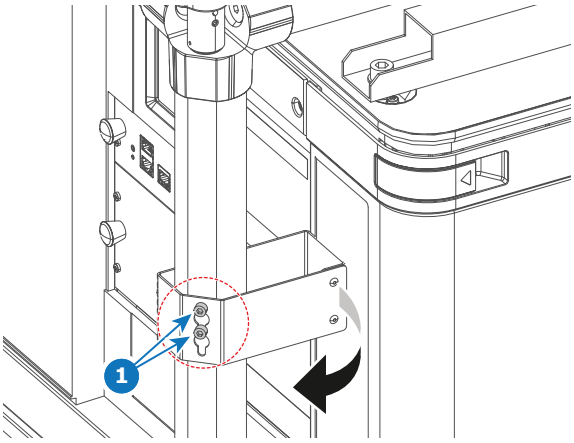


Image 8–1

2. Rotate and move the bracket to a position it won't hinder you while removing the front cover.
3. Slide the front cover to the side of the Input & Communication Unit towards the frame bar (reference 2) and remove it (reference 3).

Note: The handles do not click open. They are fixed into the cover.

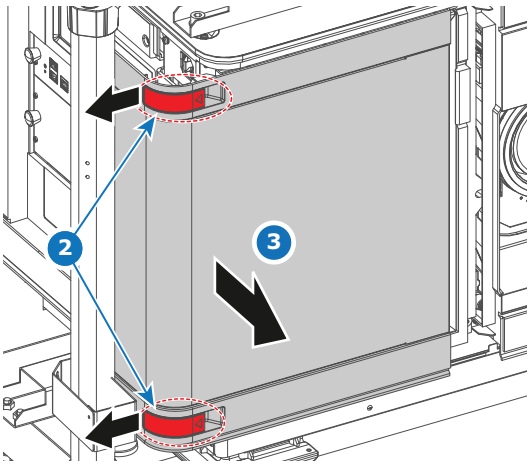


Image 8–2 Sliding the front cover towards the frame bar and removing it.

8.2 Removal of the rear cover

If the rear cover is the only cover you need to remove (e.g. when checking / replacing the filter), there is no need to turn off the projector.

Required tools

Allen wrench 4 mm

How to remove

1. Unlock the safety bracket on the side of the projector. Use a 4 mm Allen wrench to remove the two hex screws locking the bracket (reference 1).

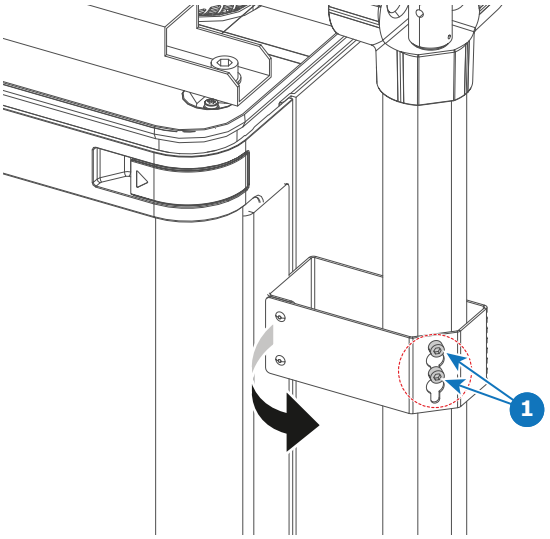


Image 8–3

2. Rotate and move the bracket to a position it won't hinder you while removing the rear cover.
3. Slide the rear cover towards the bar of the frame (reference 2) as much as possible.

Note: The handles do not click open. They are fixed into the cover.

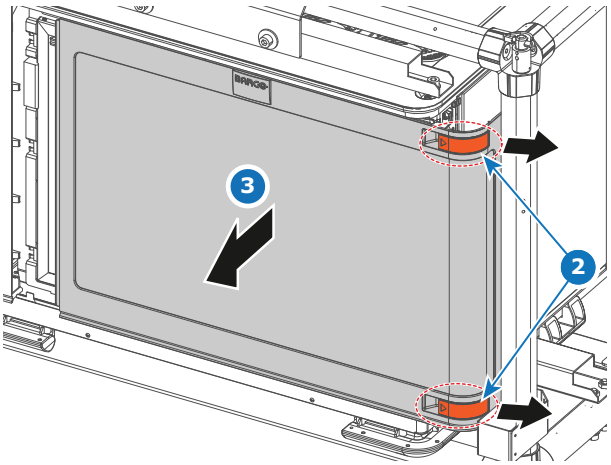


Image 8–4 Sliding the front cover towards the frame bar and removing it.

4. Tilt the rear cover a bit and remove it (reference 3).

8.3 Removal of the mains side cover

Required tools

Torx screwdriver T20

How to remove

1. Remove the rear cover.
2. Remove the two screws of the mains side cover. Use a T20 Torx screwdriver.
3. Slide the side cover a bit towards the rear side of the projector.
4. Lift up and remove the side cover and take it out of the frame.

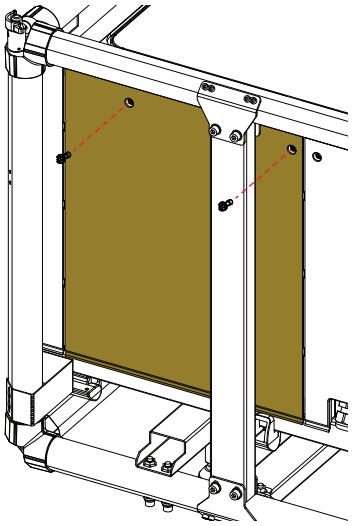


Image 8–5

8.4 Mounting the mains side cover

Required tools

Torx screwdriver T20

How to mount

1. Make sure the light source side cover is mounted.
2. Place and slide down the mains side cover.

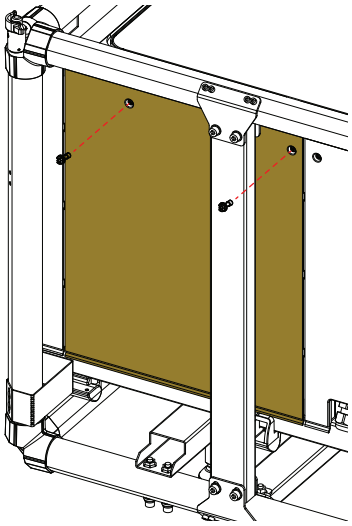


Image 8–6 Mounting the mains side cover

3. Fasten the side cover using the two screws of the mains side cover. Use a T20 Torx screwdriver.

8.5 Mounting the rear cover

Required tools

Allen wrench 4 mm

How to mount

1. Place the cover over the cover hook on the bottom of the projector frame (reference 1), while making sure it fits next to the frame bar.
2. Place the topside of the cover near the cover hooks on the top of the rear frame (reference 2).
3. Slide the clips in the rear cover over the cover hooks.

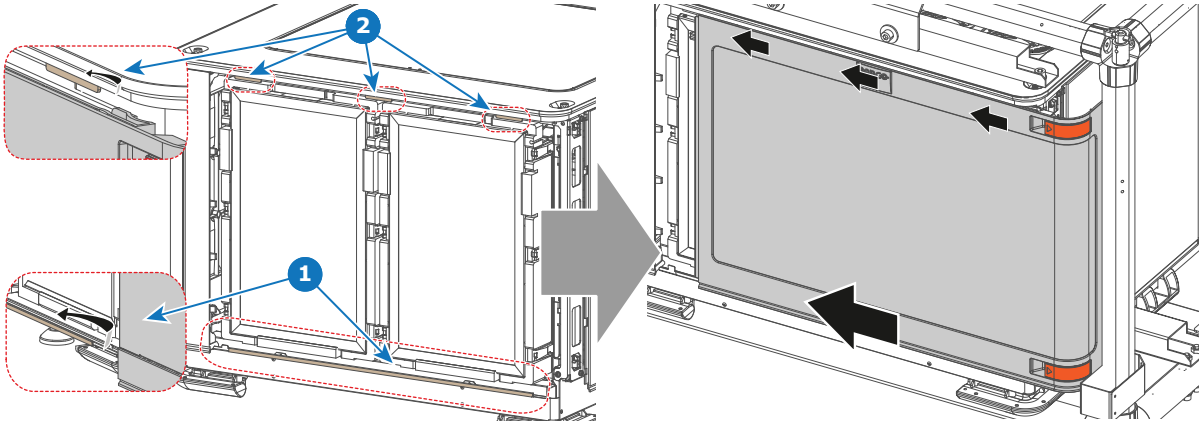


Image 8–7 Sliding in the rear cover

4. Move the locking bracket (reference 3) to the position of the holes in the frame bar (reference 4).

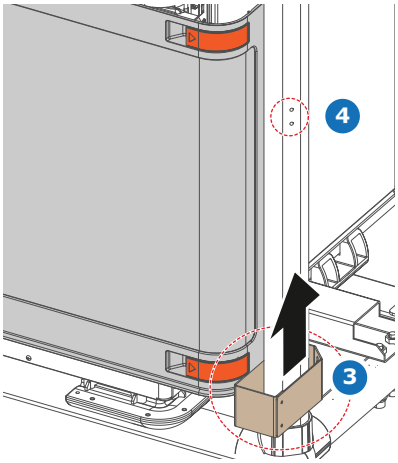


Image 8–8 Positioning the safety bracket

5. Lock the safety bracket in its place. Use a 4 mm Allen wrench to drive in the two screws.

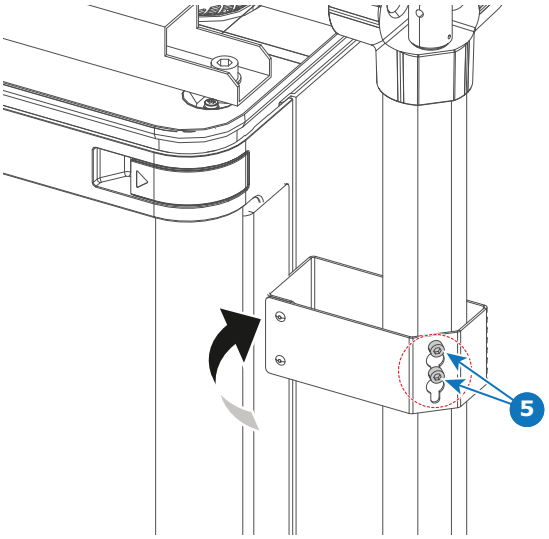


Image 8–9 Locking the safety bracket

8.6 Mounting the front cover

Required tools

Allen wrench 4 mm

How to mount

1. Place the cover over the longer cover hook on the bottom of the projector frame (reference 1).
2. Slide the clips in the front cover over the smaller cover hooks in the top of the frame (reference 2).

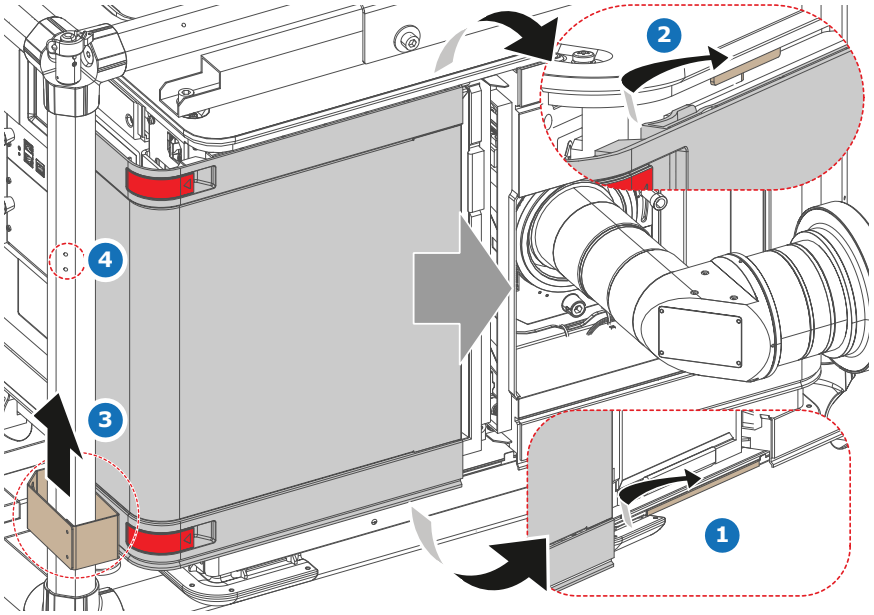


Image 8–10 Sliding in the front cover

3. Move the locking bracket (reference 3) to the position of the holes in the frame bar (reference 4)
4. Lock the safety bracket in place. Use a 4 mm Allen wrench to drive in the two screws.

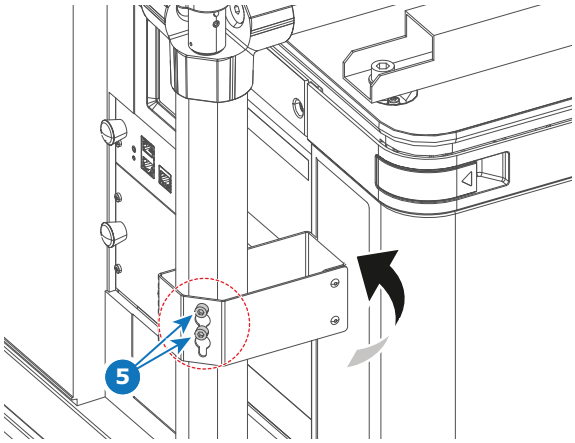


Image 8–11 Locking the safety bracket

Dimensions

A

A.1 Dimensions of the projector

Dimensions of the projector

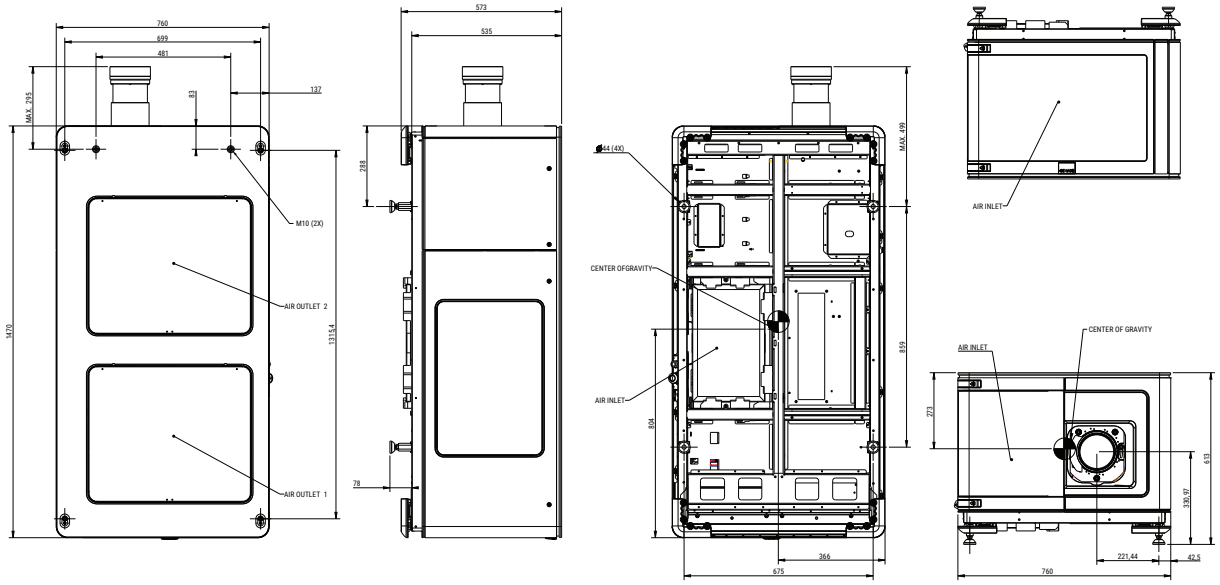


Image A–1 All dimension given in mm

Dimensions of the projector in the frame

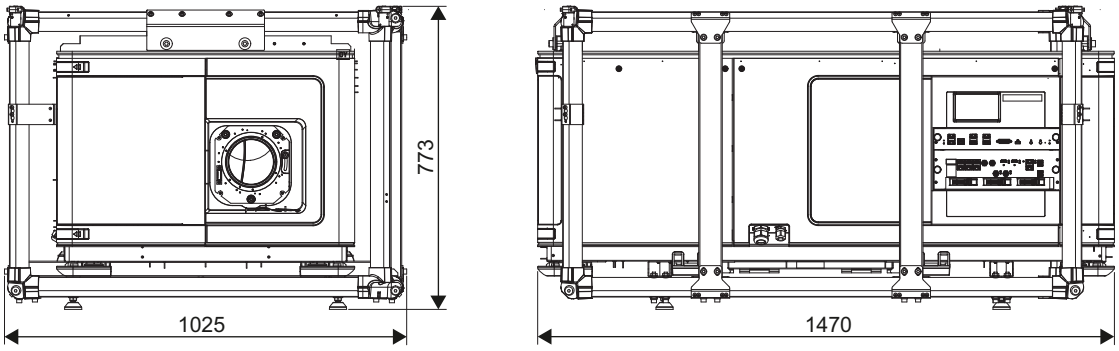


Image A–2 All dimension given in mm

Glossary

HD

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

List of tools

Allen wrench 4 mm
Allen wrench 5 mm
Flat screwdriver
Hoisting tool
Knife
Nut driver 10 mm
Open-end wrench 24 mm
Open-end wrench 36 mm
Side cutter
Torque wrench with 10 mm hexagon socket
Torx screwdriver T20

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