Balder

User Manual

ENABLING BRIGHT OUTCOMES

BARCO

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Changes

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The screenshot images used in this manual are example illustrations and should be treated as such. While the name of the product displayed in the images may be different from the product model currently used, the menu lay-out and functionality is identical.

Table of contents

1 Safety

About this document

Read this document attentively. It contains important information to prevent personal injury while installing and using the Balder product. Furthermore, it includes several cautions to prevent damage to the unit. Ensure that all safety guidelines, safety instructions and warnings mentioned in this chapter are understood and followed before installing the Balder product.

Clarification of the term “Balder” used in this document

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

- Balder

Model certification name

- Balder

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

1.1 General considerations

WARNING: Be aware of suspended Loads.

WARNING: Wear a hard hat to reduce the risk of personal injury.

WARNING: Be careful while working with heavy loads

WARNING: Mind your fingers while working with heavy loads.

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

General safety instructions

- Before operating this equipment please read this manual thoroughly and retain it for future reference.
- All warnings on the unit and in its documentation manuals must be adhered to.
- Installation and preliminary adjustments must be performed by qualified Barco personnel or by authorized Barco service dealers.
- This product contains no user serviceable parts. Attempts to modify/replace mechanics or electronics inside the housing or compartments will violate any warranties and may be hazardous.
- All instructions for operating and use of this equipment must be followed precisely.
- All local installation codes must be adhered to.

Notice on safety

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

Notice on optical radiation

This projector embeds a light source incorporating high brightness lasers. The laser light is processed through the projector's optical path. Native laser light is not accessible by the end user in any use case. The light exiting the projection lens has been diffused within the optical path, representing a larger source and lower brightness than native laser light. Nevertheless the projected light can represent a significant risk for the human eye and skin when exposed directly within the beam. This risk is not specifically related to the characteristics of laser light but solely to the high thermal induced energy of the light source, which is equivalent with lamp based systems. Thermal eye injury is possible when exposed within the Hazard Distance (HD). The HD is defined from the projection lens surface towards the position of the projected beam where the intensity equals the maximum permissible exposure as described in the chapter “Hazard Distance”.

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

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

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

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

Optical radiation safety precautions

When installing an interchangeable lens with a throw ratio that make the projector become an RG3 unit, (See the chapter “Approved Lenses” in the installation manual), refer to chapter “HD in function of modifying optics”, page 21 regarding precautions.

- The projector is Class 1 laser product that conforms with IEC EN 60825-1:2014.
  For Northern America, the projector is class 3R laser product up to throw ratio 2.5. For the Cinemascope variant, the projector can become RG 3 when a lens with throw ratio greater than 6.0 is installed.
  The projector conforms with IEC 60825–1:2007, and with performance standards for laser products under 21 CFR 1040, except with respect to those characteristics authorized by Variance Number 2016–V-0144 effective March 6, 2017.
  Do not stare into Beam.
- This projector is Risk Group 2 (RG2) according to IEC EN 62471-5.
  This projector may become Risk Group 3 (RG3) when an interchangeable lens with throw ratio greater than 4.7 is installed. For Northern America, installation requirements according to Risk group 3 (RG3) must be followed when interchangeable lens with throw ratio greater than 2.5 is installed. For the Cinemascope variant, the projector can become RG 3 when a lens with throw ratio greater than 6.0 is installed.
  Refer to the manual for the lens list and throw ratio before operation.
  Refer to chapter “HD in function of modifying optics”, page 21for Risk Group 3 installation.
  Such combination of projector and lens are intended for **professional use only**, and are not intended for consumer use.
- For RG3, no direct exposure to the beam shall be permitted.
  For RG3, operators shall control access to the beam within the hazard distance or install the product at a height that will prevent eye exposure within the hazard distance.
- This projector has one (1) built-in Class 4 laser clusters. Disassembly or modification is very dangerous and should never be attempted.
- Any operation or adjustment not specifically instructed by the user’s guide creates the risk of hazardous laser radiation exposure.
- Do not open or disassemble the projector as this may cause damage by the exposure of laser radiation.
- Additional RG2 warning against eye exposure for close exposures less than 1m. WARNING: MOUNT ABOVE THE HEADS OF CHILDREN.

Users definition

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

Throughout this manual, the terms SERVICE PERSONNEL, INSTALLER refers to persons having appropriate technical training and experience necessary to be knowledgeable of potential hazards to which they are exposed (including, but not limited to HIGH VOLTAGE ELECTRIC and ELECTRONIC CIRCUITRY, HIGH TEMPERATURES and HIGH BRIGHTNESS SOURCES) in performing a task, and of measures to minimize the potential risks to themselves or other persons.

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

1.2 RG3 user safety training to be provided by the installer

WARNING: The installer is responsible that the user is instructed. The user will sign a document to confirm that the instructions have been received and understood.

Refer to document “Declaration of user safety training” (Document number 601-0462) for training tick off and signing. Document can be found on the Barco website if not included in the box.

Users training

The installed projector may only be used by persons TRAINED and AUTHORIZED to operate professional projection systems. The installer is responsible that the user is instructed and trained.

The installer must instruct the user about:

- The requirements for a **restriction zone, restricted access location, and an exclusion zone**.
- No combustible materials should be present in the light beam Hazard Distance (HD).
- Dangerous energy sources inside the projector. The user is not allowed to remove any cover from the projector.
- The installation, maintenance or service is for skilled persons only.

Restriction zone

To protect the general public, untrained persons and children against high intensity light beams, the light beam Hazard Distance (HD) shall be taken into account. For more info on the Hazard Distance, see “High Brightness precautions: Hazard Distance”, page 18.

Restricted access location

To protect the general public, untrained persons and children, the projector must be installed in a **restricted access location**. The definition of a **restricted access location** is a location for equipment where both of the following paragraphs apply:

- Access can only be gained by skilled persons (installer or service personnel) or persons who have been instructed and trained by a skilled person. The persons must have been instructed about the reasons for the restriction applied to the location and about the precautions that shall be taken.
- Access is only possible 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 an 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 and width or by placing optional barriers. Within the restricted area operator training is considered sufficient. The applicable separation heights and widths are discussed in “High Brightness precautions: Hazard Distance”, page 18.

Exclusion zone

The projector radiates heat on its external surfaces and from ventilation ducts during normal operation. 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 not be less than 40 cm (16 in).
- The only exception is the light beam path, where the exclusion zone must not be less than the light beam Hazard Distance (HD).

1.3 Important safety instructions

To prevent the risk of electrical shock

- This product should be operated from a mono phase AC power source. Ensure that the mains voltage and capacity match the projectors electrical ratings. If you are unable to install the AC requirements, contact your electrician. Do not defeat the purpose of grounding.
- This apparatus must be grounded (earthed) via the supplied 3 conductor AC power cable. If none of the supplied power cables are the correct one, consult your dealer.
- Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord. To disconnect the cord, pull it out by the plug. Never pull the cord itself.
- Do not operate the projector with a damaged cord. Replace the cord.
- Do not operate the projector if the projector has been dropped or damaged - until it has been examined and approved for operation by a qualified service technician.
- Position the cord so that it will not be tripped over, pulled, or contact hot surfaces.
- If an extension cord is necessary, a cord with a current rating at least equal to that of the projector should be used. A cord rated for less amperage than the projector may overheat.
- Do not expose this projector to rain or moisture.
- Do not immerse or expose this projector in water or other liquids.
- Do not spill liquid of any kind on this projector.
- Should any liquid or solid object fall into the cabinet, unplug the set and have it checked by qualified service personnel before resuming operations.
- Do not disassemble this projector, always take it to an authorized trained service person when service or repair work is required.
- Do not use an accessory attachment which is not recommended by the manufacturer.
- Lightning - For added protection for this video product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet. This will prevent damage to the device due to lightning and AC power-line surges.
- Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electrical shock.
- If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the purpose of the grounding-type plug.
- Ensure that the main power cord complies with the national regulations at the site where the equipment is used.
- Do not use unauthorized replacements.
- Make sure that no objects enter into the vents and openings of the set.
- The projector is designed for indoor use only. Never operate the unit outdoors.

To prevent personal injury

- To prevent injury and physical damage, always read this manual and all labels on the system before connecting to the wall outlet or adjusting the projector.
- To prevent injury, take note of the weight of the projector.
- To prevent injury, ensure that the lens and all covers are correctly installed. See installation procedures.
- Warning: high intensity light beam. NEVER look into the lens! High luminance could result in damage to the eye.
- Warning: extremely high brightness laser: This projector uses extremely high brightness laser. Never attempt to look directly into the lens or at the laser.
- Always switch off the projector and disconnect from the mains power supply before attempting to remove any of the projector covers or access parts inside the projector.
- This product contains no user serviceable parts except the Color Wheel. Attempts to modify/replace mechanics or electronics inside the housing or compartments will violate any warranties and may be hazardous.
- Do not remove/replace any other parts than the Color Wheel. Other parts, service personnel only Warranty void if removed.
- 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.
- Only place the projector on a stable surface, or mount it securely using an approved ceiling-mount.

- It is hazardous to operate without lens or lens cap. Lenses or shields shall be changed if they have become visibly damaged, for example with cracks or deep scratches, to such an extent that their effectiveness is impaired.

To prevent fire hazard

- Barco projection products are designed and manufactured to meet the most stringent safety regulations. This projector radiates heat on its external surfaces and from ventilation ducts during normal operation, which is both normal and safe. Exposing flammable or combustible materials into close proximity of this projector could result in the spontaneous ignition of that material, resulting in a fire. For this reason, it is absolutely necessary to leave an “exclusion zone” around all external surfaces of the projector whereby no flammable or combustible materials are present.
- Do not place flammable or combustible materials near the projector!
- For the Balder projector the exclusion zone on the lens side within the light beam must be at least 1,0m.
- Caution! Hot air is exhausted from the rear vent. Do not place objects that are sensitive to heat nearer than 100 cm (40”) to the exhaust vent.
- 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. Allow for sufficient distance to walls and ceilings to avoid overheating. Minimum safety distance to the exhaust area of the unit must not be less than 100 cm (40”) and to the intake area, not less than 50 cm (20”).
- 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.
- Do not cover the projector or the lens with any material while the projector is in operation. Keep flammable and combustible materials away from the projector at all times.
- Mount the projector in a well-ventilated area away from sources of ignition and out of direct sun light. Always allow ample airflow through the projector.
- Never expose the projector to rain or moisture. In the event of fire, use sand, CO_2 or dry powder fire extinguishers.
- Never use water on an electrical fire.
- Always have service performed on this projector by qualified service personnel. Always insist on genuine Barco replacement parts. Never use non-Barco replacement parts as they may degrade the safety of this projector.
- Projection rooms must be well ventilated or cooled in order to avoid heat buildup.
- Let the projector cool down 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

- To ensure correct airflow is maintained the projector should only be operated when all of its covers in place.
- Always remove lens cap before switching on the projector. If the lens cap is not removed, it may melt due to the high energy light emitted through the lens. Melting the lens cap may permanently damage the surface of the projection lens.
- Only connect the projector to signal sources and voltages as described in the technical specification. Connecting to unspecified signal sources or voltages may lead to malfunction and permanent damage of the unit.
- To ensure correct airflow is maintained, it should only be operated when all of its covers are in place.
- The projector must always be installed in a manner which ensures free flow of air into its air inlets and unimpeded evacuation of the hot air from its cooling system.
- Slots and openings in the cabinet are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should

never be placed near or over a radiator or heat register. The device should not be placed in a built-in installation or enclosure unless proper ventilation is provided. Ensure that nothing can be spilled on, or dropped inside the projector. If this does happen, switch off and unplug the mains supply immediately. Do not operate the projector again until it has been checked by Barco authorized service personnel.

- Do not block the projector cooling fans or free air movement around the projector. Minimum safety distance to the exhaust area of the unit must not be less than 100 cm (40”) and to the intake area, not less than 50 cm (20”).
- Do not use this equipment near water.
- Do not operate the projector outside its temperature and humidity specifications as this may result in overheating and malfunction.
- Never place the projector in direct sun light. Sun light on the lens can severely damage the Digital Mirror Devices™ in which case there is a loss of warranty.
- Save the original shipping carton and packing material. They will come in handy if you ever have to ship your equipment. For maximum protection, repack your set as it was originally packed at the factory.
- Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning. Never use strong solvents, such as thinner or benzine, or abrasive cleaners, since these will damage the cabinet. Stubborn stains may be removed with a cloth lightly dampened with mild detergent solution.
- To ensure the highest optical performance and resolution, the projection lenses are specially treated with an anti-reflective coating, therefore, avoid touching the lens. To remove dust on the lens, use a soft dry cloth. Do not use a damp cloth, detergent solution, or thinner.

On servicing

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

Malfunction unit

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

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

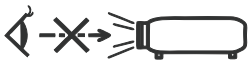
Safety Data Sheets for Hazardous Chemicals

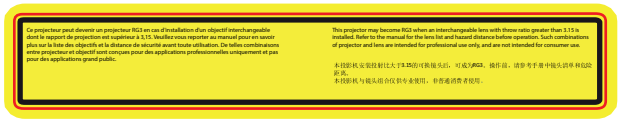
For safe handling information on chemical products, consult the Safety Data Sheet (SDS). SDSs are available upon request via safetydatasheets@barco.com.

1.4 Product safety labels

Light beam related safety labels

Safety labels explanation:

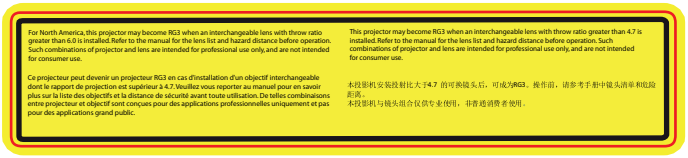
Refer to user guide for further information!	
Caution! Do not stare into beam, RG2 product.	
No telephone! Do not connect to telephone lines.	



Warning label:

Caution! For North America: With interchangeable lens with throw ratio greater than 2.5, consider hazard distance and installation requirements for RG3 product. See “HD in function of modifying optics”, page 21 , and chapter “Lenses” in user manual

Caution! With Interchangeable lens with throw ratio greater then 4.7, consider hazard distance and installation requirements for RG3 product. Refer User manual.



Cinemascope Warning label:

Caution! For North America: With interchangeable lens with throw ratio greater than 6.0 , consider hazard distance and installation requirements for RG3 product. See “HD in function of modifying optics”, page 21 , and chapter “Lenses” in user manual

Caution! With Interchangeable lens with throw ratio greater then 4.7, consider hazard distance and installation requirements for RG3 product. Refer User manual.

FDA Label	
EMC label	

Location of safety Label

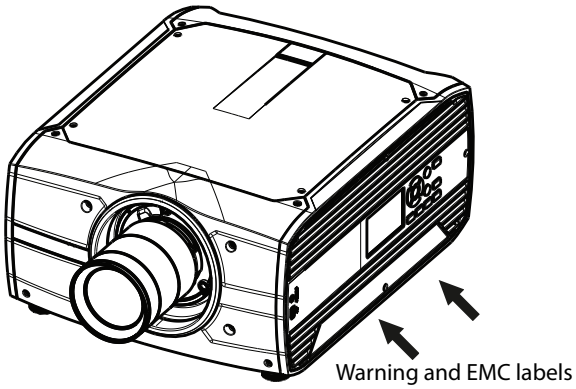


Image 1–1

CAUTION: This product contains chemicals, including lead, known to the State of California to cause birth defects or other reproductive harm. Recycle properly, do not dispose of in ordinary waste!

1.5 High Brightness precautions: Hazard Distance

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

Restriction Zone (RZ) based on the HD

The HD depends on the amount of lumens produced by the projector and the type of lens installed. See chapter “HD in function of modifying optics”, page 21.

To protect untrained end users (as 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.

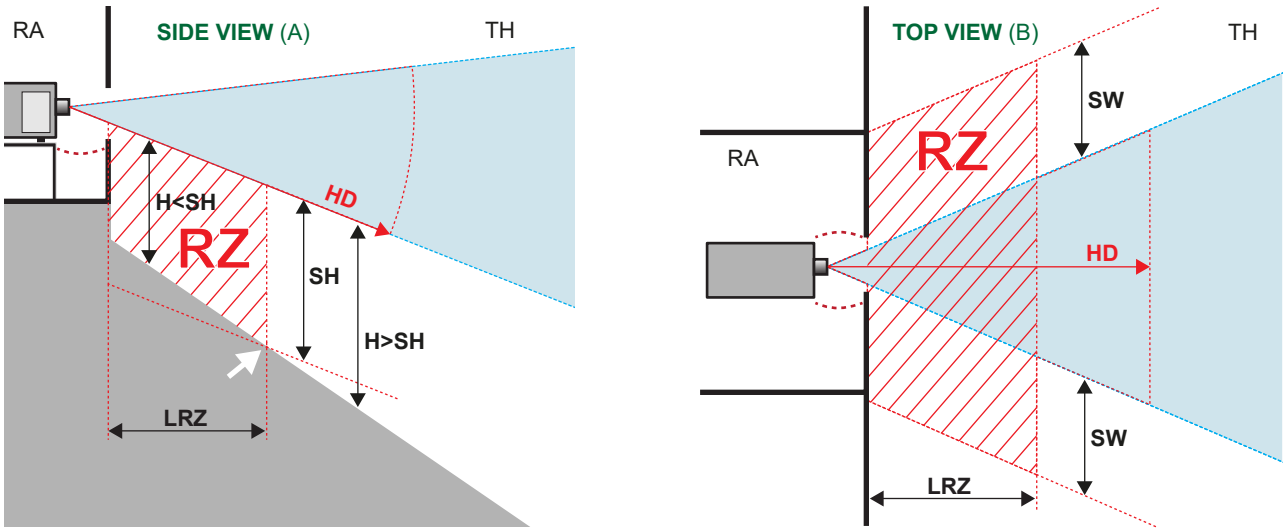


Image 1–2

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 1–3 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 1–3.

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

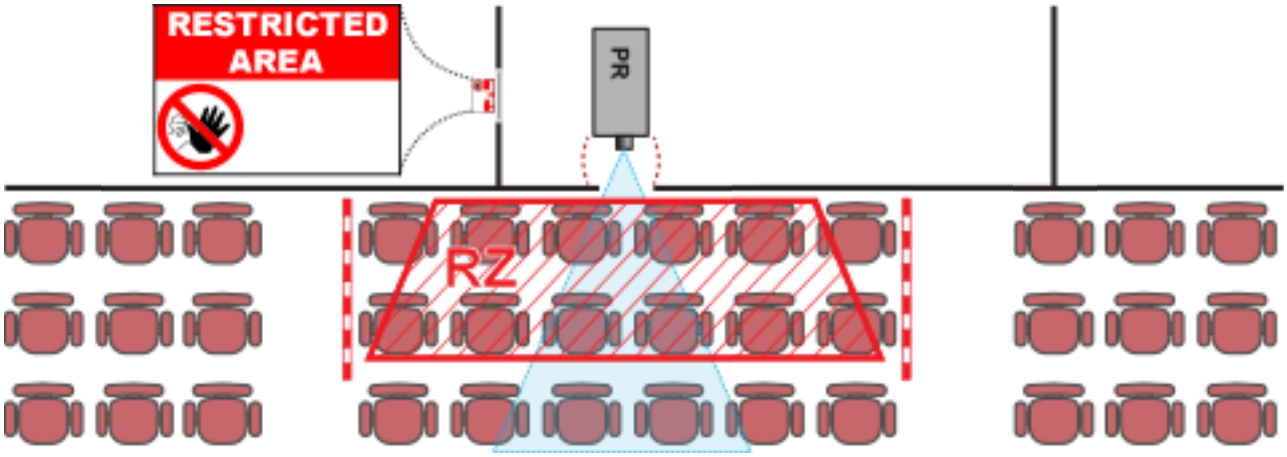


Image 1–3

USA market

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

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

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

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

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

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

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

1.6 HD for fully enclosed projection systems

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

Restriction Zone (RZ) based on the HD

The projector is also suitable for rear projection applications; projecting a beam onto a defuse coated projection screen. As displayed in Image 1– 4 two areas should be considered: the restricted enclosed projection area (RA) and the observation area (TH).

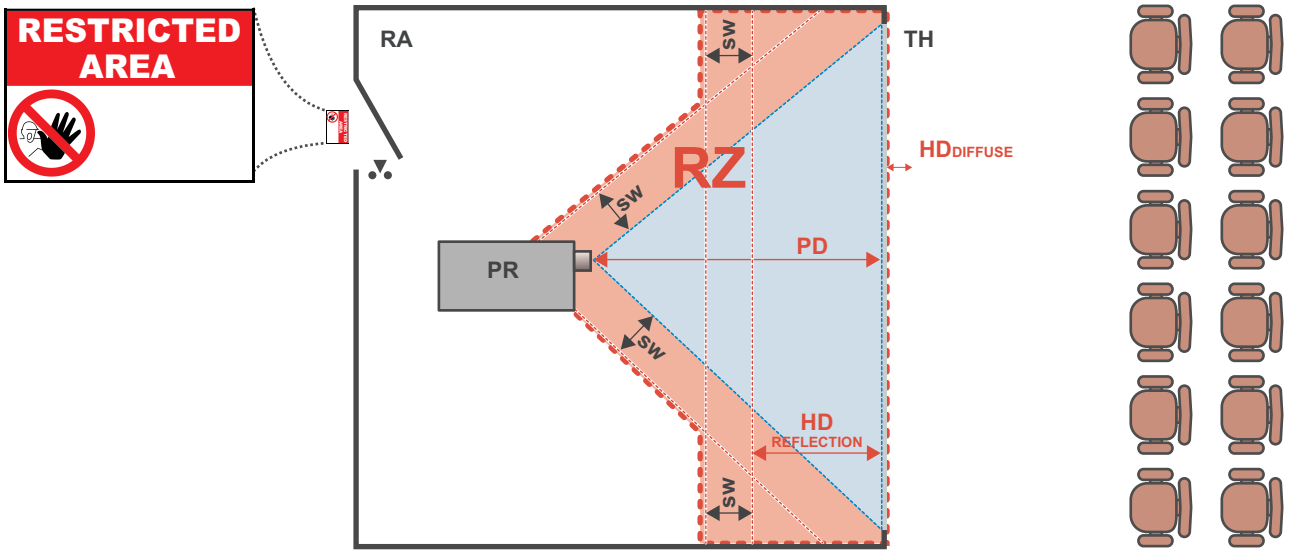


Image 1–4

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 18, 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 18, it is mandatory to create a restricted zone within the beam areas closer than any HD. In the enclosed projection area the combination of two restricted zones are relevant: The restricted zone of the projected beam toward the screen; taking into account 1 meter Separation Width (SW) from the beam onward. Combined with the restricted zone related to the rear reflection from the screen ($HD_{reflection}$); also taking into account a 1 meter lateral separation.

The $HD_{reflection}$ distance equals 25% of the difference between the determined HD distance and the projection distance to the rear projection screen. To determine the HD distance for the used lens and projector model see chapter “HD in function of modifying optics”, page 21.

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

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

1.7 HD in function of modifying optics

Hazard distance

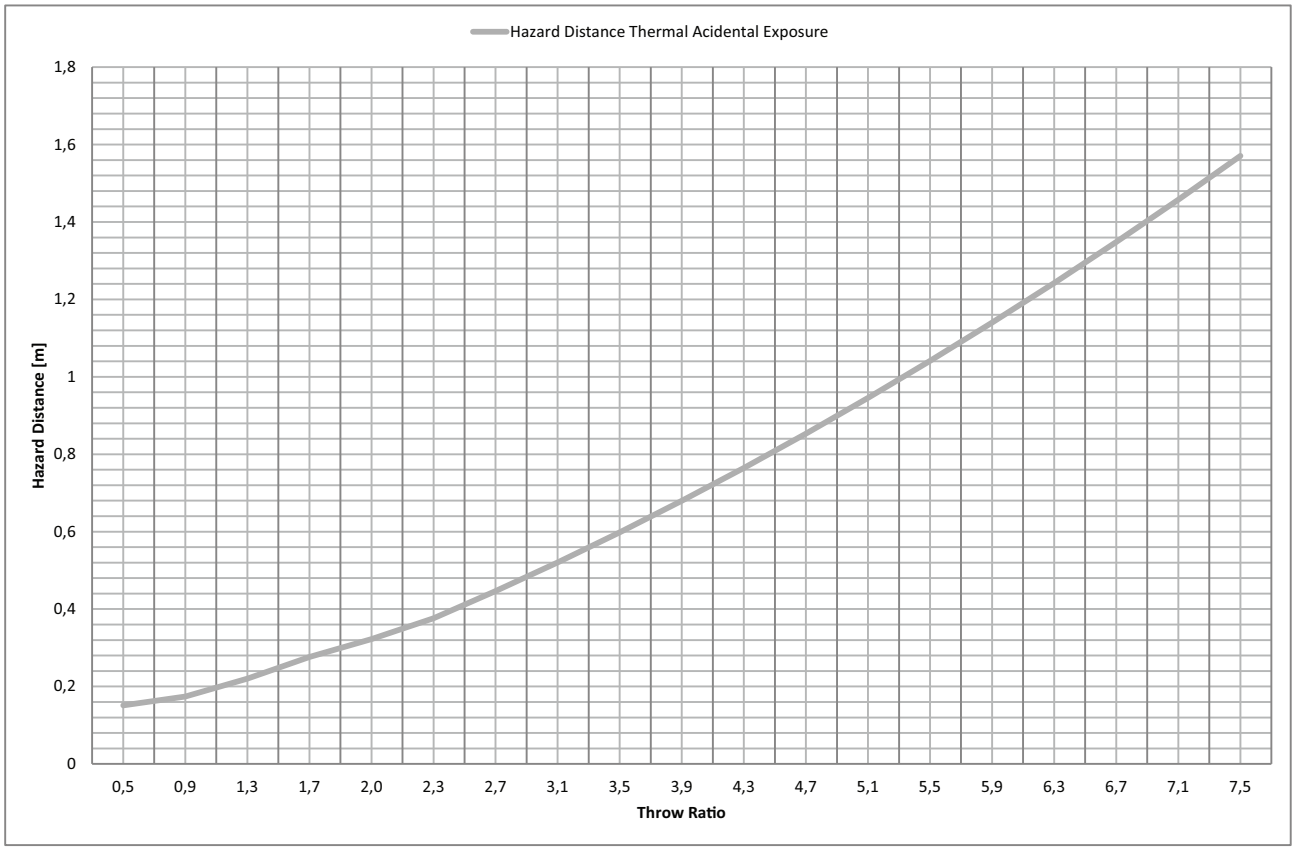


Image 1–5

HD Hazard Distance
TR Throw Ratio

Hazard distance (Cinemascope variants)

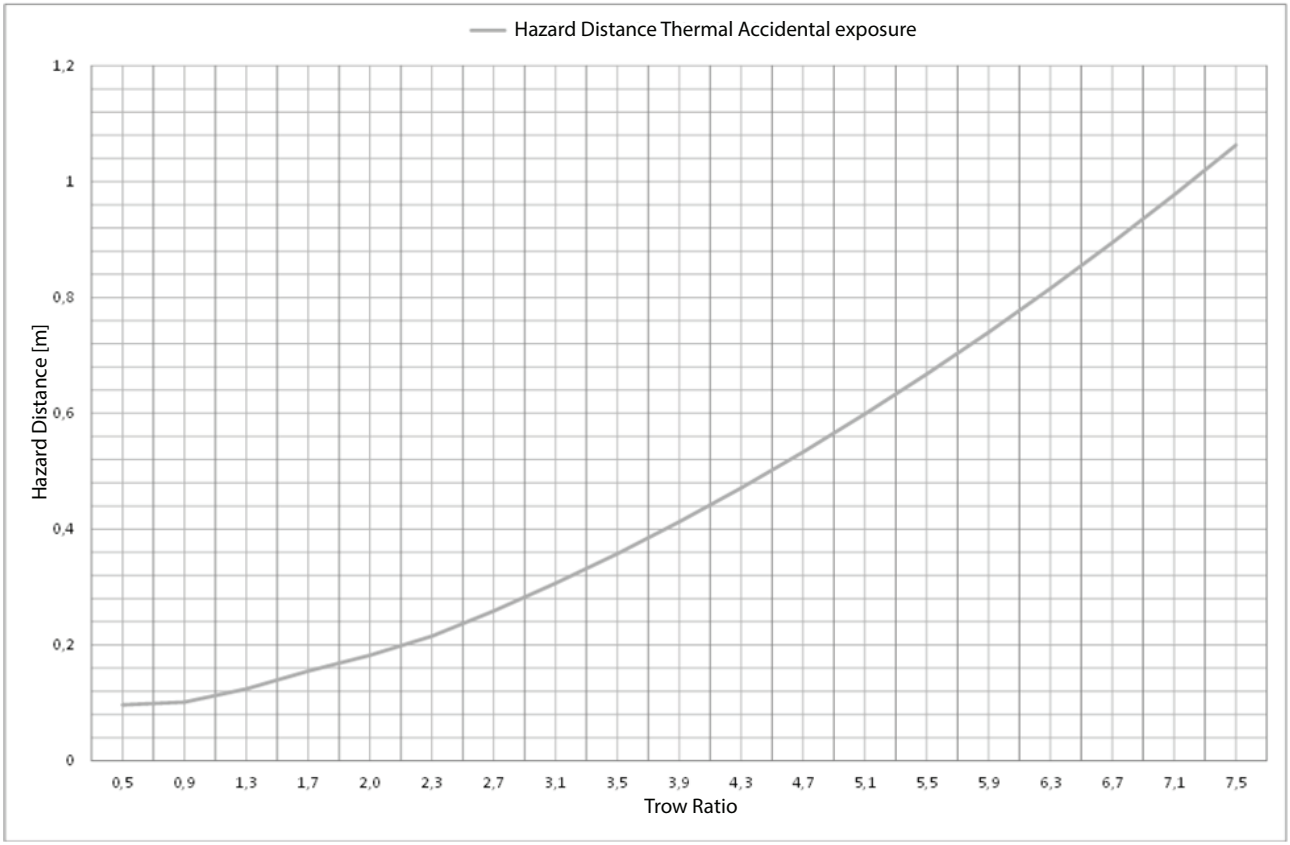


Image 1–6

HD Hazard Distance
TR Throw Ratio

1.8 HD calculation of multi-projector stacks

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

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

The information needed is:

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

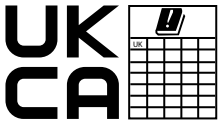
For 3 or more projectors, in case the distances between adjacent lenses are not equal, take the shortest distance.

HD calculation:

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

1.9 Compliance

UK Compliance



This product is fit for use in the UK.
Authorised Representative: Barco UK Ltd
Address: Building 329, Doncastle Road
Bracknell RG12 8PE, Berkshire, United Kingdom

Balder introduction 2

About this chapter

This chapter and by extension this whole document, the **Balder user guide**, is intended for the user who want's to get familiar with the projector hardware parts. It describes the input and communication boards, the remote control unit, local keypad, how to power up the projector, the different power states, product specifications and much more. It does not contain installation instructions and does not describe the Pulse graphic user interface. Refer to the **Balder installation manual** for detailed installation instructions and to the **Pulse OSD user guide** for all software features of the projector.

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

For detailed product specifications see the appendix chapters: “Specifications”, page 73, and following.

2.1 Projector orientation

Projector orientation

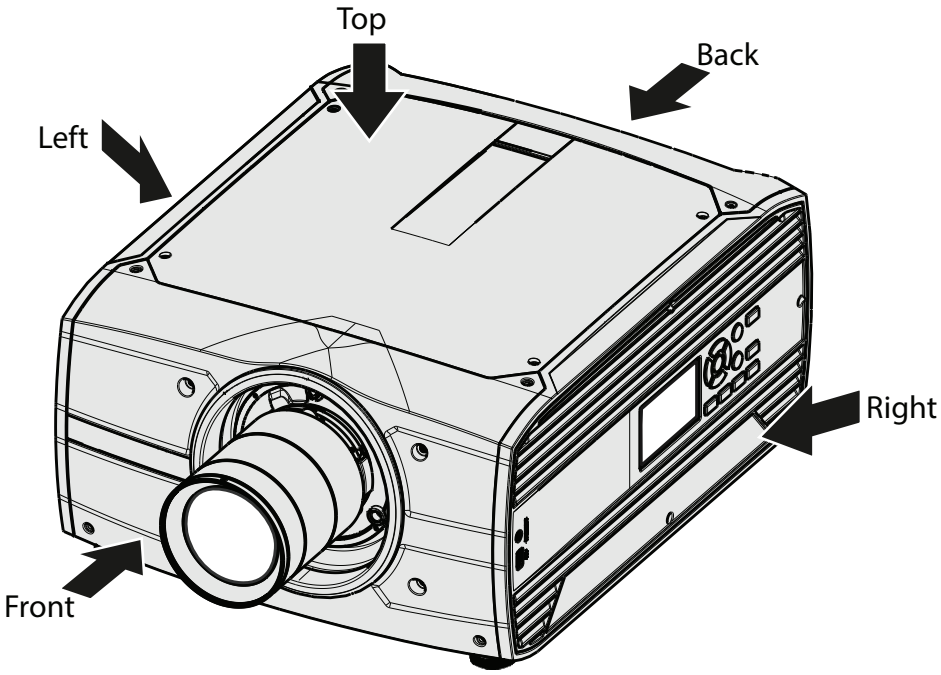


Image 2–1

2.2 Main Components

Projector Items Overview

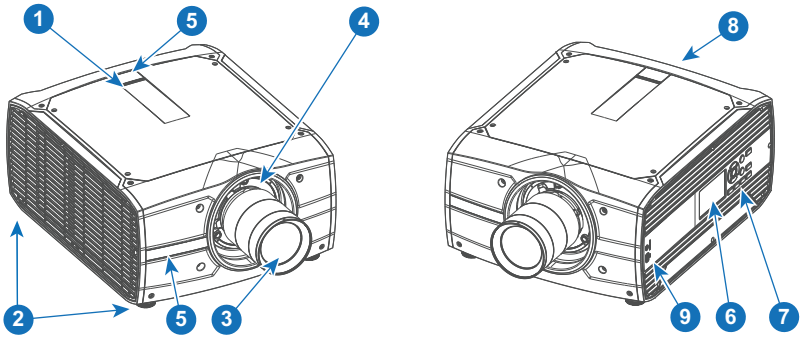


Image 2–2 Overview of the components

1 LED warning indicator
2 Adjustable feet
3 Lens
4 Lens holder
5 IR receiver (top and front)
6 LCD touch panel
7 Local keypad
8 Connection panel
9 Front USB and trigger board

2.3 LED Status Light

About

The Status Led is located on the rear top of the Projector

During normal operation, the LED is not illuminated. In the event of a critical error or high temperature, the LED will illuminate red.

By critical error, the projector cannot be restarted until the projector is disconnected from the power supply and then reconnected again. If the reason for the error persist, the projector will again go to critical error status.

By high temperature, the projector can be restarted when it has cooled down, and the temperature is back within the normal operating limitations

2.4 Color Wheels

About

The projector is delivered with a standard color wheel, that is suitable for most applications. Other color wheels are available upon specific request.

Consult Barco sales office or a service partner in order to find the most suitable color wheel for the specific application.

The installed color wheel can be found in the *Status* / *Dashboard* menu

2.5 Optional Accessories

Rigging Frame

Item Number	Item Description
R9802224	F70/F90 Multifunctional Frame.

The F70 Rigging frame is a rugged, easy to install frame, designed to streamline the process of installing one or more projectors.

When installed i the frame, the projector:

- can be rotated around the x, y and z axis, in order to obtain a seamless adjustment in applications using multiple projectors.
- Can be installed from a truss or a pedestal.
- Can be easily stacked one on top of another, for instance a dual or multichannel installations.

Flight Case

F70 use the same Flight case as the F90 series projectors.

Item Number	Item Description
R9801195	F90 flight case.

Image 2–3

The F70 Flight Case is a custom designed container, that is suitable for shipping the projector, including flight frame, signal and power cords and up to two lenses.

The case is fully-lined to protect the projector and lenses during transit and storage.

2.6 Download Projector Toolset

About Projector Toolset

Projector Toolset is a software tool to set up, configure, manage and control Barco projectors. It is a standalone application that runs on a Java Virtual Machine and that does not require extra services to run.

Projector Toolset is only available in a download version, no CD can be ordered.

Where to find the download file(s)

1. Go to the product support page of the Projector Toolset on the Barco website or use following URL: *https://www.barco.com/support?pn=R9850559*
2. Activate the “Driver & Software” tab page and download the software package for your applicable operating system.
3. Activate the “Documentation” tab page and download the Projector Toolset manual for the Balder (Pulse) projector.

Installation

Follow the installation instructions as written in the Projector Toolset manual.

3 Local keypad

3.1 Local keypad functions

Keypad overview

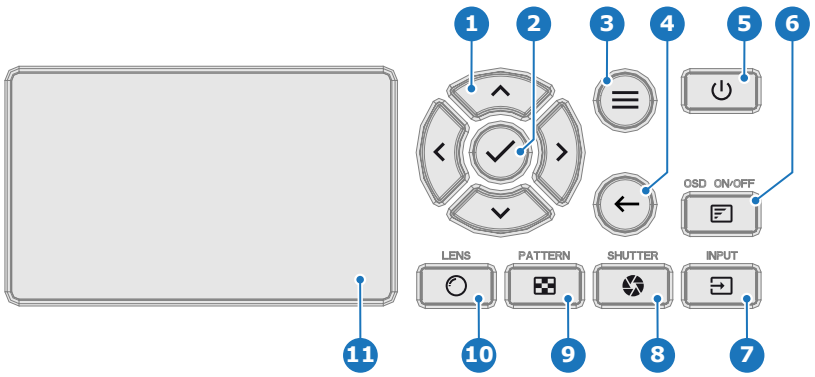


Image 3–1

1 Menu navigation
2 Menu confirmation, OK button
3 Menu open / close
4 Menu back
5 Power on / off
6 Projector OSD on / off
7 Input selection
8 Shutter open / close
9 Test patterns
10 Lens adjustment
11 LCD touch panel

Functionality

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

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

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

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

3.2 Local keypad backlight

Button backlight status

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

Button	Color status	Description
Power button 	Blinking WHITE (slow)	Projector starts up (booting)
	Blinking WHITE (fast)	Firmware update
	Solid WHITE	Projector is in Standby or Ready mode
	Blinking BLUE	Projector goes to ON mode
	Solid BLUE	Projector is ON
	Blinking RED	Error condition
Shutter button 	Off (no color)	Projector is OFF, starts up, or is in Standby or Ready mode.
	Solid WHITE	Projector is ON, shutter is open
	Solid RED	Projector is ON, shutter is closed

3.3 LCD touch panel

Functionality

The LCD touch panel has two main functions:

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

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

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

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

Navigation

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

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

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

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

Basic Remote Control Unit

4

About the basic remote

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

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

4.1 Basic remote functions

Functions

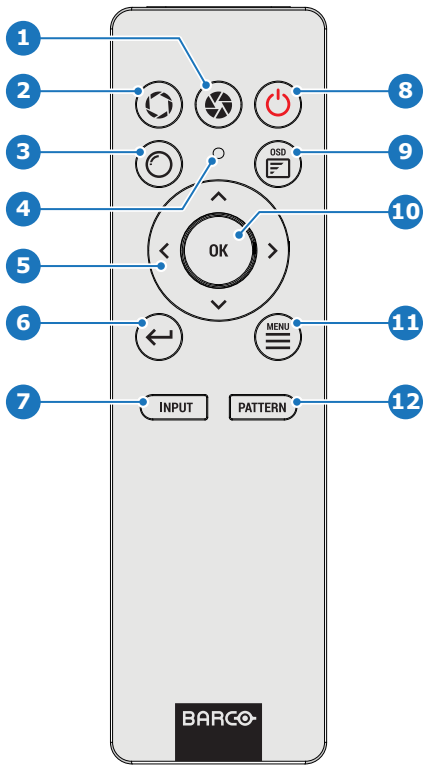


Image 4–1

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

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

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

4.2 Basic remote batteries

Battery placement & replacement

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

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

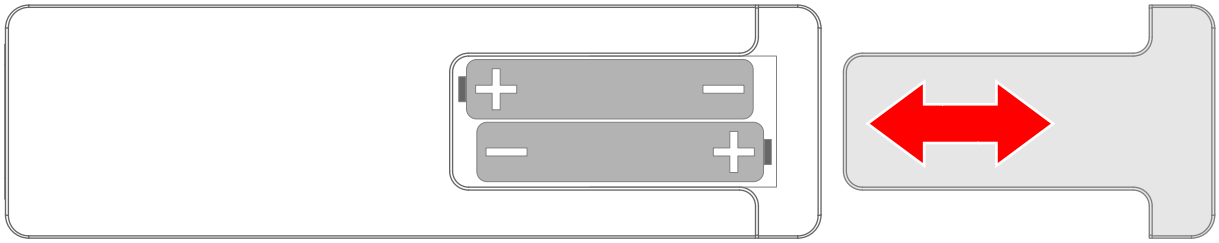


Image 4–2 Position of batteries in basic remote.

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

Pulse Remote Control Unit

5

5.1 Pulse RCU functions

Functions

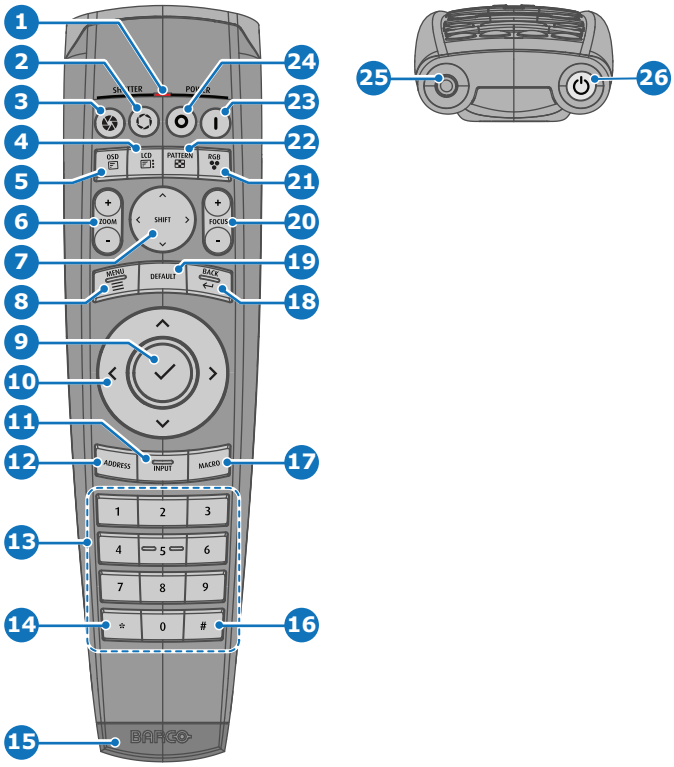


Image 5–1

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

5.2 Pulse RCU battery installation

About the batteries for the remote control

Batteries are no longer included in the packaging. It is up to the user to purchase the correct batteries.
Use 2 AA size (alkaline) batteries in the remote control.

Before using your remote control, first install the batteries.

How to install

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

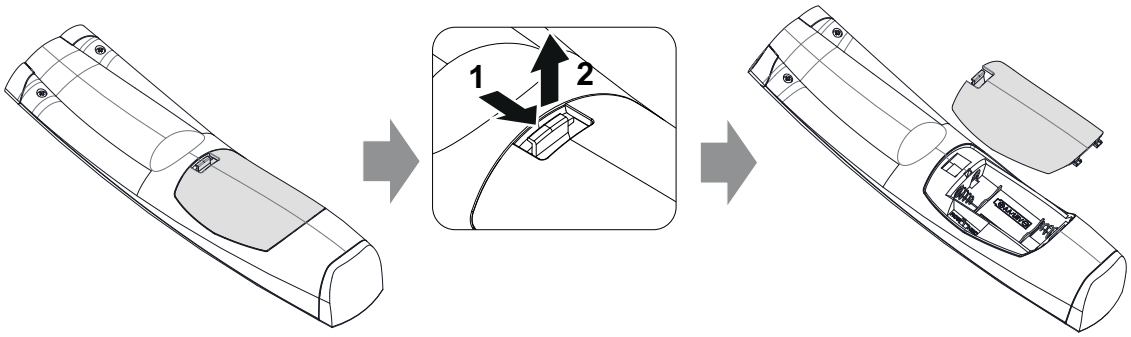


Image 5–2

2. Insert the two AA size batteries, making sure the polarities match the + and - marks inside the battery compartment.

Tip: Use alkaline batteries for optimum range and lifetime.

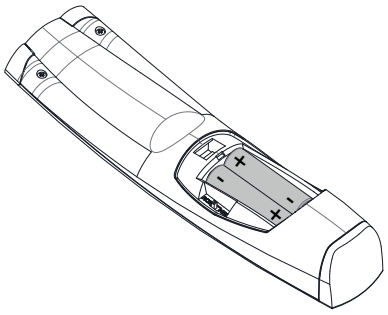


Image 5–3

3. Insert (1) both lower tabs of the battery cover in the gaps at the bottom of the remote control, and press (2) the cover until it clicks in place.

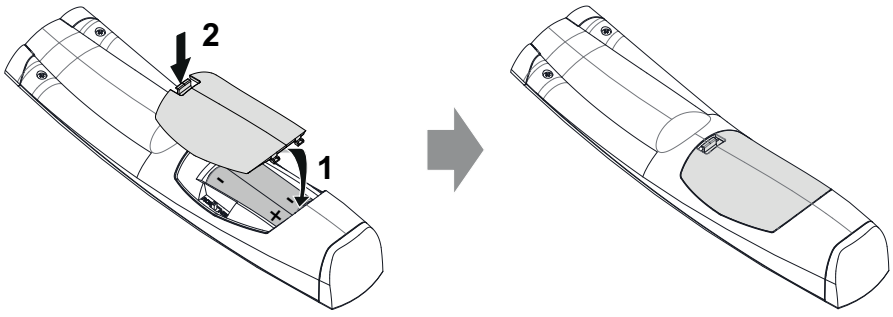


Image 5–4

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

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

CAUTION: Replace the battery as explained above. There is a risk of explosion if the battery is incorrectly installed.

5.3 Pulse RCU on/off button

Function of the remote control on/off button

The Pulse remote control unit has at the front side an on/off button (reference 1 Image 5–5). Switching off the remote control prevents that unwanted commands are send due to an accidental key press. Furthermore, switching the RCU off will extend the battery lifetime of the remote control.

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

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

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

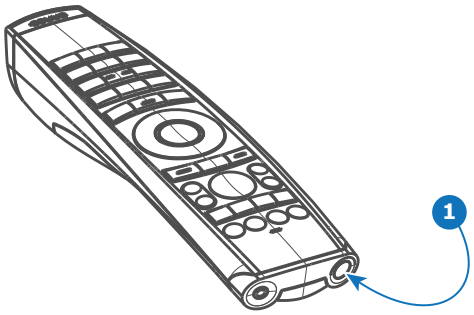


Image 5–5

5.4 Pulse RCU “button pressed indicator”

Functions button pressed indicator

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

5.5 Pulse RCU “RGB filter” button

Filtering the color of the projected image

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

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

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

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

5.6 Pulse RCU “Projector OSD on/off” button

Functions Projector on/off button

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

From Pulse 2.3 onward, this button now supports another function. If “*Stealth mode*” has been configured for the LCD display, pressing this button a long time (5 seconds or more) will activate or deactivate Stealth mode. For more info on Stealth mode, see Pulse software user guide.

5.7 Using the XLR connector of the RCU

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

Revised RCU

Revised Remote Control Units produced from April 2023 onward will require the projector to run software 2.3.x (or newer) in order to properly use the XLR connector. If not yet updated to the most recent version, update the projector software. For more information, see “Maintenance”, page 67.

How to use the XLR connector

1. Remove the XLR cover by pulling it backwards.

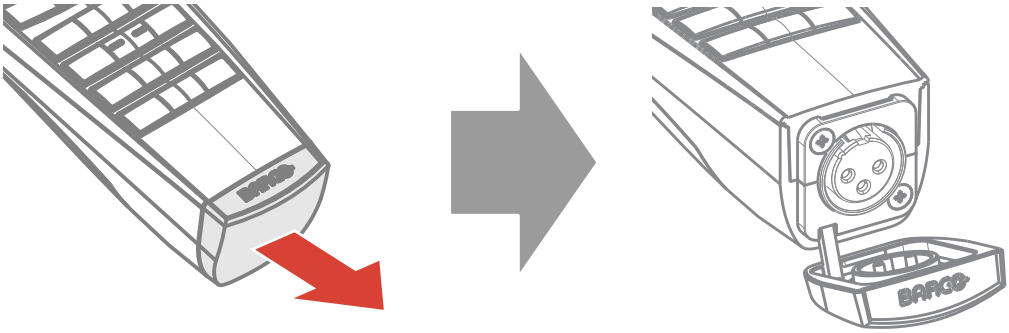


Image 5–6

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

5.8 Using the mini-jack connector of the RCU

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

How to use the mini-jack connector

1. Connect a cable with the mini-jack connector (reference 2 Image 5–7) of the RCU.
2. Connect the other end of the cable with the mini-jack input of the projector.

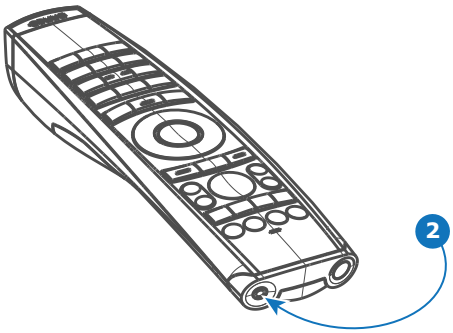


Image 5–7

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

5.9 Pulse RCU silicone protection sleeve (optional)

Introduction

Barco offers a silicone form fitting protection sleeve for the Pulse RCU. The silicone material keeps it comfortably, non slip and soft touch. All buttons and openings remain accessible. The sleeve is quick and easy installed. For ordering information see Barco website.

How to install

1. Pull off the rubber XLR-lid from the RCU.

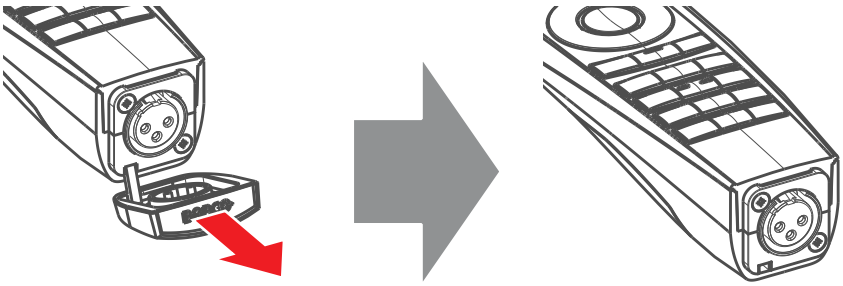


Image 5–8

2. Place back side (XLR side) of the RCU into the sleeve and pull the other side of the sleeve over the front side of the RCU.

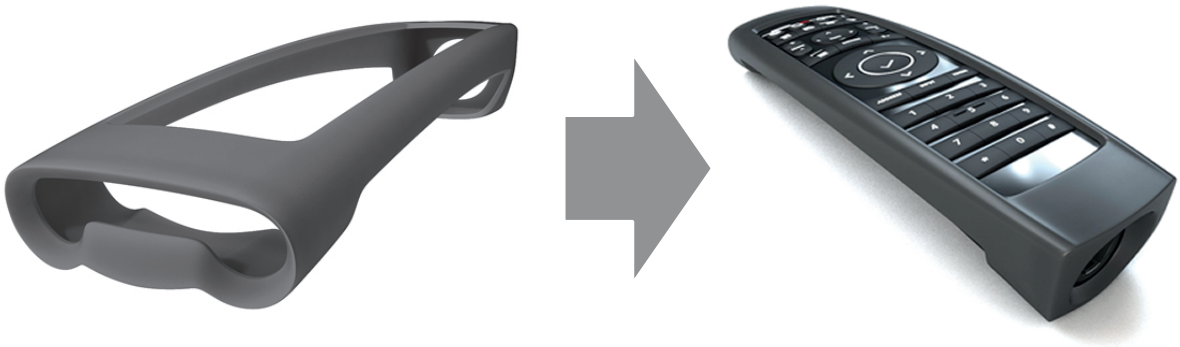


Image 5–9

6 Powering On/Off

6.1 Power modes

General

The table below details the Balder power modes.

Mode	Description
ON (normal)	Projector is booted up and the light source is on
READY	Projector is booted up but the light source is off
ECO (Standby)	Light source is switched off and projector electronics are powered down

Energy consumption is significantly lowers in ECO (Standby) mode: only <0.5W if network is not plugged in and 2W with network (Wake-on-LAN).

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

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

6.2 Power up the projector

CAUTION: Sources should always be connected before the projector is powered up

CAUTION: Ensure that the main power cord complies with the national regulations where the equipment is used.
Do not use unauthorized replacements.
Do not use power cords which are damaged.

Power up the projector using the keypad or remote

1. Plug the mains cord into the projector.
2. Plug the mains cord into a grounded AC outlet.

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

Image 6–1

3. Press the power button on the keypad or the power button on the remote.

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

Image 6–2

4. When the power button backlight is solid blue, the projector is ready for use.

6.3 Power Off the projector

How to power off the projector

1. Use the *standby button*, or the *Power On* button on the remote control, to switch off the projector.

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

2. If **ECO** Standby mode is enabled in the service menu (refer to the section "GUI - system settings/Standby ECO", in User Guide) the projector will automatically go to **ECO** standby mode after a time-out (default 15 minutes).

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

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

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

How to unplug the projector

1. Follow the procedure above to Switch Off the projector.
2. Wait at least 2 minutes prior to unplug the projector by removing the power cord from the AC outlet.

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

6.4 Power mode transitions

Transition diagram

This diagram shows all modes available on the projector (ON, READY, ECO STANDBY), and the actions necessary to change mode.

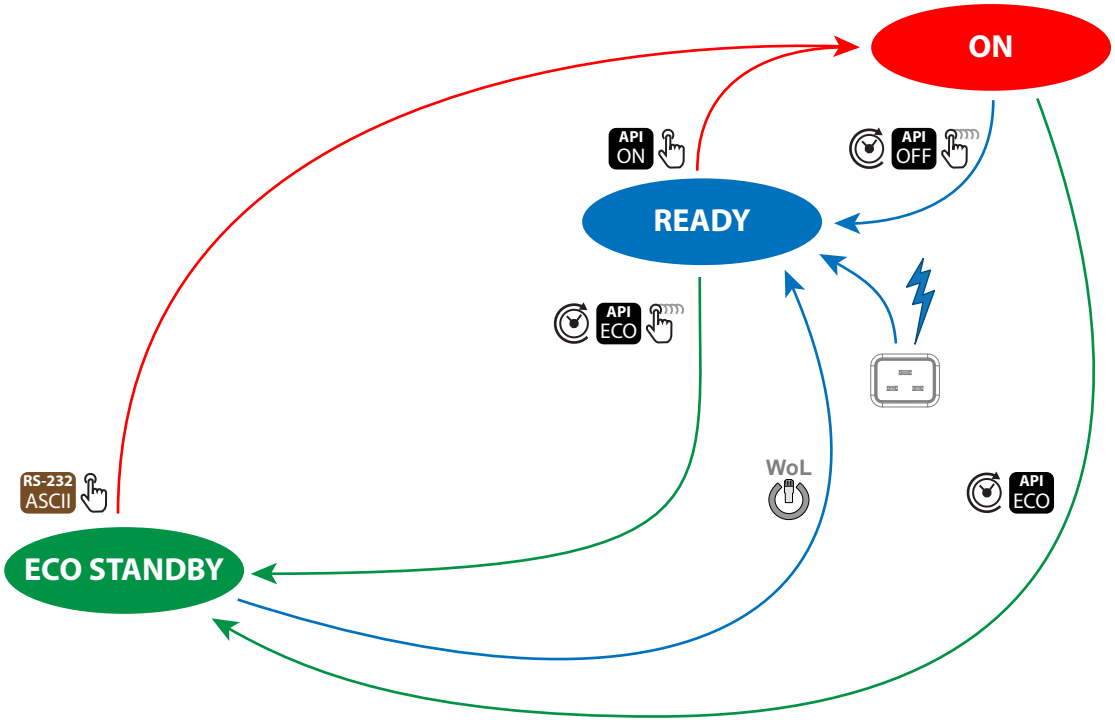


Image 6–3

Symbol	Description
	Short pressing the **Power on/off** button on the local keypad or on the remote control unit.
	Long pressing the **Power on/off** button on the local keypad or on the remote control unit.
	Wake-On-LAN (WOL). Only works if a network was connected with the LAN port of the projector while the projector went to **ECO STANDBY**.
API ON API OFF API ECO	API command to change the power state of the projector (Power ON, Power OFF, Go to ECO).See Pulse user guide for more info (E.g. PJLink).
RS-232 ASCII	RS-232 ASCII command to Power ON the projector when in ECO STANDBY.
	Auto light source off and **auto standby** features. Default disabled (factory settings). For configuration see power saving settings in the Pulse user guide.
	The projector starts default up in **READY** mode when plugging in the power cord.

Wake-On-LAN (WOL)

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

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

1. Send WOL.
2. Wait for connection to façade/prospector (the unit does provide feedback when it's ready).
3. Wait for ready state.

4. Sleep 5 seconds.
5. Send JSON “power on” command (to switch in **ON** mode).

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

6.5 Increasing the projector lifetime

General

Barco propose the following recommendations to increase the projector life time:

- Dimming out the laser output intensity (70%).
- Use the device in regulated temperature area.
- Apply the recommendations describe in the “Operating in 24/7 Mode” chapter if the projector is destined to be operated continuously 24 hours a day / 7 days a week.

Typical life time of the projector could be up to double if the laser output is dimmed to 75% and if the projector operate in 25°C temp condition.

6.6 Operation in 24/7 Mode

General

When the projector is destined to be operated continuously 24 hours a day, 7 days a week, the following recommendations should be followed:

- Twice a day, switch off the projector during two minutes by using the power button. The power down action will automatically and invisibly trigger a grey test pattern running within the projector.
- Apply moving video content as much as possible, with on average a level of 50% white (long-term use of extreme black or white content could potentially cause accelerated aging).

Controlling the projector

7

7.1 Using the RCU

Pointing to the reflective screen or IR sensors

Switch on the RCU and point the front of the RCU to the reflective screen surface or point directly to one of the projector IR sensors. Make sure you are within the effective operating distance (30 m, 100 ft in a straight line).

The RCU will not function properly if strong light strikes the IR sensor window or if there are obstacles between the RCU and the IR receiver.

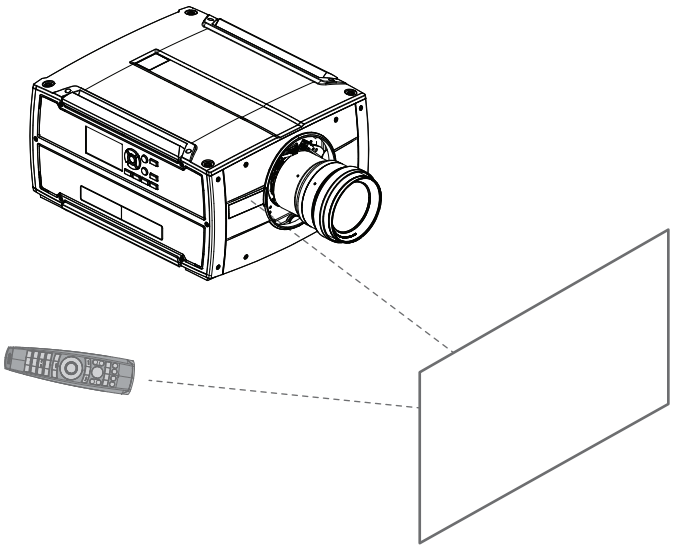


Image 7–1

The RCU can also hard-wired been used. See chapter “Using the mini-jack connector of the RCU”, page 50.

7.2 Displaying and Programming addresses into the RCU

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

Broadcast address
Projector will always execute the command coming from a RCU programmed with that broadcast address.

Displaying the Projector Address on the Screen.

1. If the projector is on, press the menu key and navigate to the Status page. The projector address and the broadcast address can be seen under the Communication heading.

   The projector's address is displayed on the LCD status screen and / or the OSD.

How to Program an Address into the RCU?

1. Press the **Address** button until the *Button pressed indicator* lights up continuously (proximately 5 seconds).
2. Enter the address with the digit buttons within the time the indicator lights up (also proximately 5 seconds).

Note: That address can be any value between 0 and 31.

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

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

7.3 Setting the projector addresses

Projector address
Address installed in the projector to be individually controlled via the RCU or via the serial communication.

Broadcast address
Projector will always execute the command coming from a RCU programmed with that broadcast address.

About individual projector address

As more than one projector can be installed in a room, each projector should be separately addressable with an RCU or with a computer using serial communication. Therefore each projector has its own address. The factory default individual projector address is ‘0’.

When the address is set, the projector can be controlled with the RCU. Only addresses between 0 and 31 are supported for the RCU.

Next to an individual projector address, each projector has also a broadcast address for group control.

About broadcast address

Broadcast address is a common address that can be set on the projector. That can be “0” or “1”. The default broadcast address is '0'.

Any command coming from an RCU programmed with that common address will be executed.

How to set

1. In the main menu, select *System Settings* > *Communication* > *IR Control*.

   For detailed instructions see user guide of the projector.

7.4 Quick setup via Direct access

Quick source selection

1. Press the **Input** button on the remote control or local keypad.

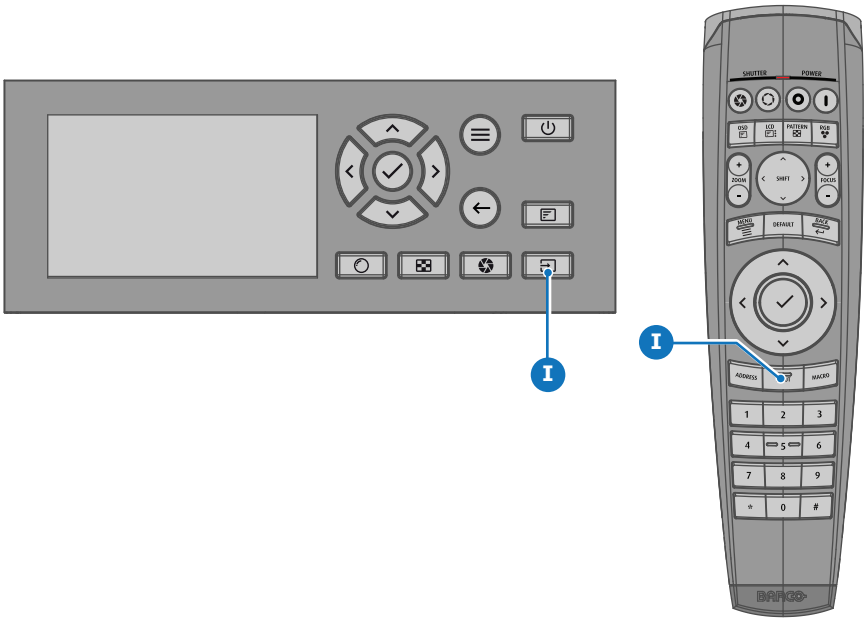


Image 7–2

The *Source selection* menu opens on the LCD display.

2. Use the arrow keys to select the desired source.

Quick test pattern selection

1. Press the Test pattern button on the remote control or local keypad.

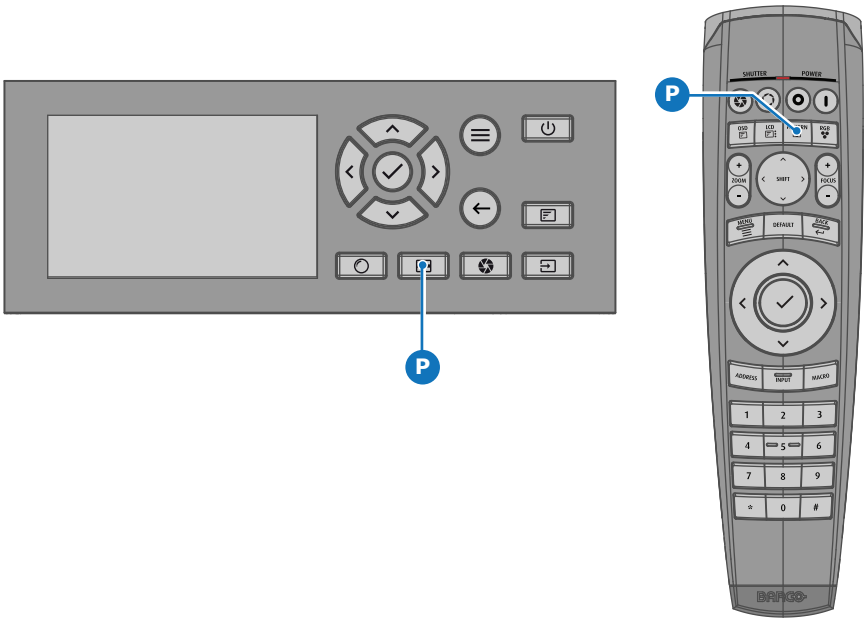


Image 7–3

The *Test pattern* menu opens on the LCD display.

2. Use the arrow keys to select the desired test pattern.

7.5 Shortcut buttons

About the keypad shortcut buttons

On the keypad, there are three shortcut buttons; for lens function, test pattern selection, and input selection. See “Local keypad”, page 33 and “Pulse Remote Control Unit”, page 41for location and description. (The remote control has only the test pattern shortcut button).

When the test pattern or input shortcut button is pressed, a pop up menu will show up on the LCD screen.

Make a selection by the arrow keys, and confirm.

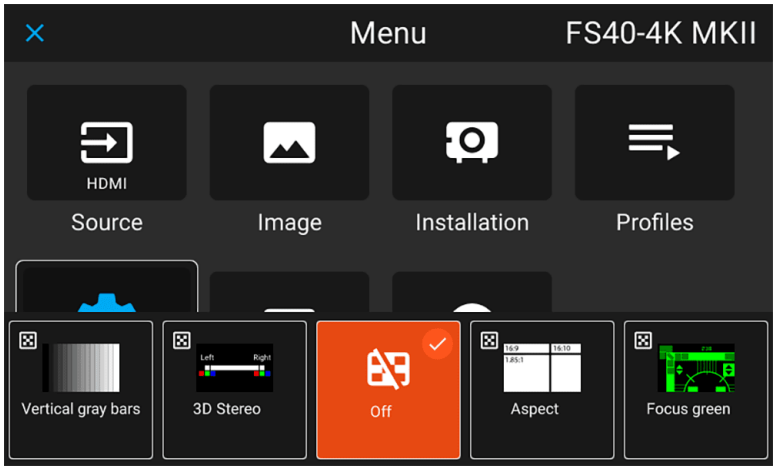


Image 7–4 Test pattern pop up menu

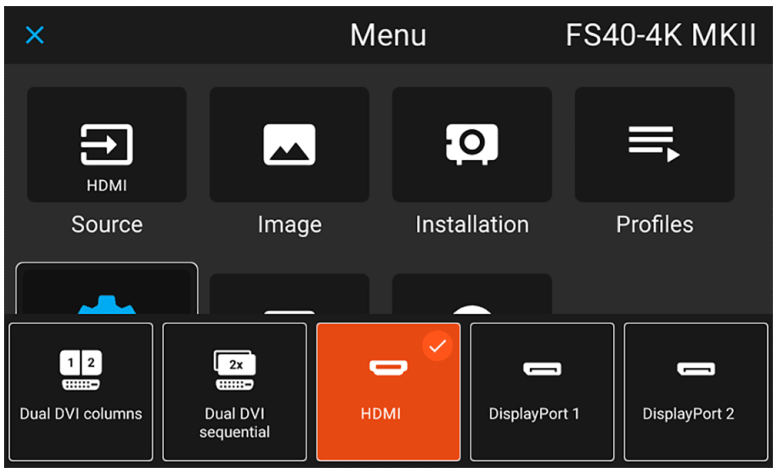


Image 7–5 Input source pop up menu

8 Maintenance

8.1 Software update

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

Prerequisites

First download the latest projector software package from the Barco's website.

Required tools

Projector Toolset

How to update the software using Projector Toolset

1. Power on the projector. Wait until the **Power on/off** button is lit white or blue.
2. Start Projector Toolset and make a connection with the projector. For more information, see the *"Projector Toolset"* user guide.
3. Select tab **Update settings**.
4. Fill out the path to the update file (1)

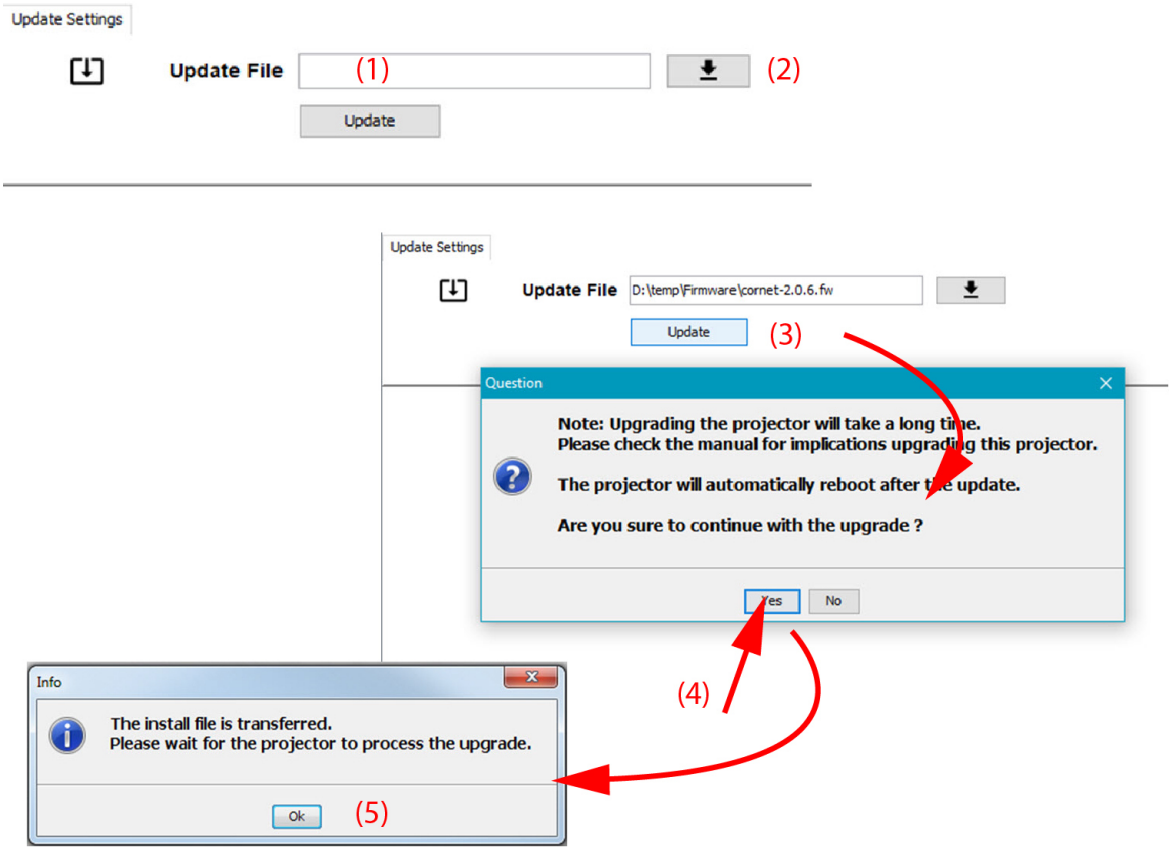


Image 8–1 Example of updating the software using Pulse Projector Toolset

or

click on the path selection icon (2) to open a browser window.

5. Browse to the desired update package (format .fw) and click **Select Update Package**.

   The path will be filled out in the input field next to *Update File*.
6. Click **Update** (3).

   The update starts. This action can take a long time. A dialog message will be prompted.

7. Confirm with **Yes** to continue (4).

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

   A dialog message will be prompted once the update is completed. Click **Ok** to confirm.

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

1. Power on the projector. Wait until the **Power on/off** button is either lit white or blue.
2. Place the correct projector firmware file (format .fw) on a clean USB flash drive.

   Note: Make sure the flash drive is FAT32 compatible & no other files are on the flash drive.

3. Place the projector in Ready mode.
4. Plug the flash drive in the USB port on the Communication Panel.

   A software update dialog will be prompted on the LCD display, showing the version of the firmware on the Flash drive.

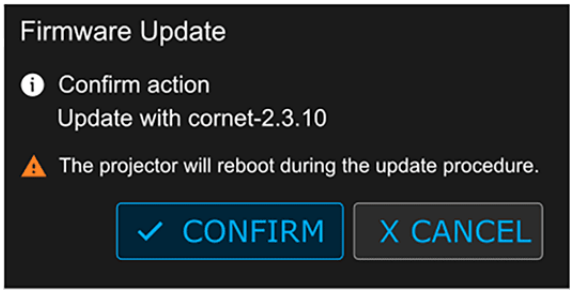


Image 8–2 Example of a Software update dialog prompt

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

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

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

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

For more info about the Projector Toolset see user guide of the Projector Toolset.

8.2 Projector lenses

General guidelines for cleaning projector lenses

Blow off dust with clean compressed air (or pressurized air cans) .

Use lens cleaner and a clean lens cleaning cloth to remove the dust and contamination.

Wipe in broad strokes, in one direction only.

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

Use a dry clean lens cleaning cloth to remove left liquid or stripes. Polish with small circles.

If there are still fingerprints on the surface, repeat with lens cleaner and a clean lens cleaning cloth, then polish again with a dry cloth.

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

8.3 Projector cabinet

WARNING: Always disconnect the projector from the mains power net before attempting to clean the projector cabinet.

General guidelines for cleaning the projector cabinet (exterior only)

Clean the housing of the projector with a damp cloth. Stubborn stains may be removed with a cloth lightly dampened with a mild detergent solution.

8.4 Filters

General info regarding Air intake and filters.

The product is shipped default without any filters and by avoiding filters, the ventilation system operates for longer periods between maintenance, since no clogging of filters means more air is allowed through the system, resulting in lower operating temperatures over time. The air intake are just protected by a mesh. This mesh has to be vacuum cleaned occasionally when needed. No specific interval for this operation, but to be performed when needed.

For more demanding surrounds both smoke and dust filters can be applied externally to the system to avoid internal fouling.

General guidelines for cleaning projector filters (external)

Remove the filter from the projector then use a vacuum to remove excess dust from the filter. Do not wet or soak the filter.

Cleaning of the projector filter should be done in a separate room to avoid dust contamination.

Specifications

A

A.1 Specifications Balder

Projector type	Single chip DLP
Technology	0.9" DMD™
Resolution	3,840 x 2,160 (4K UHD)
Aspect ratio	1.78:1 (16:9)
Light source	Laser phosphor
Light source lifetime	20,000 - 60,000 hours Laser intensity dependent
Light output	DCI (P3) Color Wheel: Up to 4,000 ANSI lumens T Color Wheel: Up to 5,000 ANSI lumens M Color Wheel: Up to 7,000 ANSI lumens
CLO (constant light output)	Yes
Contrast ratio	1,800:1 Sequential 450:1 ANSI
Brightness uniformity	>90%
Lens range	**(R9802232) -** EN68 (0.30:1) - Periscope Lens (requires vertical installation) **(R9801832) -** FLDX UST (0.41:1) - 90&#176 Lens **(R9802244) -** EN67 (0.65:1) **(R9802243) -** EN66 (0.80 - 1.21:1) **(R9802003) -** EN76 (0.95 - 1.30:1) **(R9802242) -** EN63 (1.20 - 1.70:1) ***** **(R9802241) -** EN61 (1.70 - 2.50:1) ***** **(R9801211) -** EN44 (2.50 - 4.60:1) *** Standard Lens Option(s)**
Optical lens shift	Up to 88% vertical lens shift & up to 38% horizontal lens shift (depending on lens selection) Visit the Barco Residential Lens Calculator for further information Download Lens & Airflow Data Here
Optical dowser	Yes
Color correction	P7 RealColor™
Color gamut	DCI (P3) Color Wheel: DCI P3 T Color Wheel: REC.709 M Color Wheel: REC.709
Image processing	Embedded Warp & Blend Engine
WARP	4-Corner Warp & Bow Correction via Warp Engine
Orientation	360° Rotation
Network connection	10/100 Ethernet via RJ45 connection
Integrated web server	Yes
Diagnostics	via Prospector web interface
HDR	HDR10

3D	Active Stereoscopic 3D Additional hardware required please contact an authorized Barco representative for details
Inputs	1 x HDMI 2.0 (HDCP 2.2) 1 x HDBaseT (HDCP 1.4 - 9Gbps only) 2 x Dual Link DVI-D 2 x Display Port (1.2) 12G-SDI 1 x RJ45 Ethernet 1 x RS232 1 x Remote Control (RC) 3 x USB (2 x Rear, 1 x Front) DMX (1 x Input, 1 x Output)
Input resolutions	From VGA up to 4K UHD (3,840 x 2,160) @ 60Hz or up to 2,560 x 1,600 @ 120Hz
Latency	TBD
Control	IR, RS232, IP, 12v Trigger Driver modules available for: Crestron, Control4, RTI & Savant **NOTE:** 12v Trigger(s) do not follow standard functionality and require an IP command to enable / disable them. Download our integration guide for more information.
Power requirements	100 - 240V / 50 - 60Hz
Power consumption	1,100 W - Max.
BTU per hour	4,000 BTU/h - Max.
Standby power	Standby ECO Mode: 110v - 0.73W (with LAN Connection) 230v - 0.82W (with LAN Connection)
Noise level (typical at 25°C/ 77°F)	36 dB(A)
Operating temperature	10 to 45 °C at Sea Level Optimal Set Point: 20 °C
Operational humidity	20 to 80% (relative humidity)
Airflow requirements	Air Inlet (from Rear w/Feet Down): Right Side Exhaust (from Rear w/Feet Down): Rear Clearance Requirements: Front: 1cm Left: 1cm Right: 50cm Rear: 100cm Top: 1cm
Exhaust airflow	112 ft3/min @ 25 °C 190 m3/hour @ 25 °C Download Lens & Airflow Data Here
Dimensions (WxLxH)	Excluding Lens 475 x 588 x 286 mm

	18.7 x 23.1 x 11.3 in.
Weight	Excluding Lens 37 kg / 81.5 lbs
Shipping Dimensions	Excluding Lens 730 x 600 x 480 mm 28.7 x 23.7 x 18.9 in.
Shipping weight	Excluding Lens 43 kg / 94.8 lbs
Standard accessories	Power Cord, Remote Control
Certifications	CE, FCC Class A and cCSAus
Safety requirements	This projector is Risk Group 2 (RG2) according to IEC EN 62471-5. This projector may become Risk Group 3 (RG3) when an interchangeable lens with throw ratio greater than 4.7 is installed. For Northern America, installation requirements according to Risk group 3 (RG3) must be followed when interchangeable lens with throw ratio greater than 2.5 is installed. Refer to the installation manual for further information.
24/7 operation	This projector is designed and warranted for heavy duty 24/7 operation. Specific measures and design considerations have been made in order for it to comply with stringent requirements in challenging applications.
Warranty	Limited 3 years parts and labor Extendable up to 5 years
*	Firmware upgradable Please contact an authorized Barco representative for details

A.2 Specifications Balder CinemaScope

Projector type	Single chip DLP
Technology	0.9" DMD™
Resolution	5,120 x 2,160 (5K UHD)
Aspect ratio	2.37:1 (CinemaScope)
Light source	Laser phosphor
Light source lifetime	20,000 - 60,000 hours Laser intensity dependent
Light output	DCI (P3) Color Wheel: Up to 3,600 ANSI lumens T Color Wheel: Up to 4,000 ANSI lumens M Color Wheel: Up to 5,600 ANSI lumens
CLO (constant light output)	Yes
Contrast ratio	1,800:1 Sequential 450:1 ANSI
Brightness uniformity	>90%
Lens range	**(R9802232) -** EN68 (0.30:1) - Periscope Lens (requires vertical installation) **(R9801832) -** FLDX UST (0.41:1) - 90&#176 Lens **(R9802244) -** EN67 (0.65:1) **(R9802243) -** EN66 (0.80 - 1.21:1) **(R9802003) -** EN76 (0.95 - 1.30:1) **(R9802242) -** EN63 (1.20 - 1.70:1) ***** **(R9802241) -** EN61 (1.70 - 2.50:1) ***** **(R9801211) -** EN44 (2.50 - 4.60:1) *** Standard Lens Option(s)**
Optical lens shift	Up to 122% vertical lens shift & up to 40% horizontal lens shift (depending on lens selection) Visit the Barco Residential Lens Calculator for further information Download Lens & Airflow Data Here
Optical dowser	Yes
Color correction	P7 RealColor™
Color gamut	DCI (P3) Color Wheel: DCI P3 T Color Wheel: REC.709 M Color Wheel: REC.709
Image processing	Embedded Warp & Blend Engine
WARP	4-Corner Warp & Bow Correction via Warp Engine
Orientation	360° Rotation
Network connection	10/100 Ethernet via RJ45 connection
Integrated web server	Yes
Diagnostics	via Prospector web interface
HDR	HDR10

3D	Active Stereoscopic 3D Additional hardware required please contact an authorized Barco representative for details
Inputs	1 x HDMI 2.0 (HDCP 2.2) 1 x HDBaseT (HDCP 1.4 - 9Gbps only) 2 x Dual Link DVI-D 2 x Display Port (1.2) 12G-SDI 1 x RJ45 Ethernet 1 x RS232 1 x Remote Control (RC) 3 x USB (2 x Rear, 1 x Front) DMX (1 x Input, 1 x Output)
Input resolutions	From VGA up to 4K UHD (3,840 x 2,160) @ 60Hz or up to 2,560 x 1,600 @ 120Hz
Latency	TBD
Control	IR, RS232, IP, 12v Trigger Driver modules available for: Crestron, Control4, RTI & Savant **NOTE:** 12v Trigger(s) do not follow standard functionality and require an IP command to enable / disable them. Download our integration guide for more information.
Power requirements	100 - 240V / 50 - 60Hz
Power consumption	1,100 W - Max.
Standby power	Standby ECO Mode: 110v - 0.73W (with LAN Connection) 230v - 0.82W (with LAN Connection)
BTU per hour	4,000 BTU/h - Max.
Noise level (typical at 25°C/ 77°F)	36 dB(A)
Operating temperature	10 to 45 °C at Sea Level Optimal Set Point: 20 °C
Operational humidity	20 to 80% (relative humidity)
Airflow requirements	Air Inlet (from Rear w/Feet Down): Right Side Exhaust (from Rear w/Feet Down): Rear Clearance Requirements: Front: 1cm Left: 1cm Right: 50cm Rear: 100cm Top: 1cm
Exhaust airflow	112 ft3/min @ 25 °C 190 m3/hour @ 25 °C Download Lens & Airflow Data Here
Dimensions (WxLxH)	Excluding Lens 475 x 588 x 286 mm

	18.7 x 23.1 x 11.3 in.
Weight	Excluding Lens 37 kg / 81.5 lbs
Shipping Dimensions	Excluding Lens 730 x 600 x 480 mm 28.7 x 23.7 x 18.9 in.
Shipping weight	Excluding Lens 43 kg / 94.8 lbs
Standard accessories	Power Cord, Remote Control
Certifications	CE, FCC Class A and cCSAus
Safety requirements	This projector is Risk Group 2 (RG2) according to IEC EN 62471-5. This projector may become Risk Group 3 (RG3) when an interchangeable lens with throw ratio greater than 6.0 is installed. Refer to the installation manual for further information.
24/7 operation	This projector is designed and warranted for heavy duty 24/7 operation. Specific measures and design considerations have been made in order for it to comply with stringent requirements in challenging applications.
Warranty	Limited 3 years parts and labor Extendable up to 5 years
*	Firmware upgradable Please contact an authorized Barco representative for details

A.3 Specifications DVI-I inputs

Specifications

Parameter	Value
Connector	DVI- I female digital RGB (DVI-D functionality)
Signal characteristics	DVI 1.0, Digital, TMDS
Max. cable length	25 m (24 AWG)
Max. pixel rate	330 MHz (dual link), 165 MHz (single link)
Scan format	Progressive
Max. input data resolution	1920x1200 60Hz (Single link) 2560x1600 60Hz (Dual Link) 1920x1200 @120 Hz (Dual link) 1920x2400 @60Hz
Bit depth	8 bit
EDID	Supported
HDCP	Supported

A.4 Display Port 1.2

Specifications

Parameter	Value
Connector	Standard Display port
Signal characteristics	DP 1.2
Functionality	Mandatory
Max. cable length	2 m (24 AWG) - RBR; 2 m (24 AWG) – HBR1, HBR2
Supported Link Rate	RBR, HBR1, HBR2
Scan format	Progressive
Max. input data resolution	2560x1600@120Hz WQXGA / 3840x2400 @60Hz (4K) Max
Bit depth	8, 10, 12 bit
EDID	Supported
HDCP	Supported

A.5 Specifications HDMI 2.0

Specifications

Regarding HDMI 2.0: The decryption protocol HDCP 2.2 are enabled and valid in this unit.

Parameter	Value
Connector	Standard HDMI
Signal characteristics	Digital, TMDS
Max. cable length	2 m (24 AWG)
Max. pixel rate	594 MHz
Max. input data resolution	3840x2160 @60Hz
Bit depth	8, 10, 12 bits
EDID	Supported
HDCP	Supported
Ethernet	No
Audio return	No
HDCP	Supported

A.6 Specifications SDI inputs

Specifications

Parameter	12G-SDI	3G-SDI
Standard	SMPTE ST-2082-1 and ST-2082-10 standards	SMPTE 424M-2006 10bit level A
Connector	Samtec BNC7T-J-P-HN-RA-BH1	1x) BNC 75 ohm type IEC 60169-8, Amendment 2 1997, A
Bandwidth	12GHz	>3 GHz
Return loss	-6dB @ 12GHz	>10dB at 3GHz
Impedance	75 ohm resistive	75 ohm resistive

A.7 Specifications HDBase T input

The HDBaseT standard allows the link to also be used as a regular network port. In addition to carrying video data, it can also be connected to regular ethernet network without carry out any video data.
Due to limitations in the projector and network standards, only the LAN and the HDBaseT should be used for network traffic, but not both simultaneously. If both are connected simultaneously it might lead to undefined behavior where traffic is not being sent on the link indicated by the IPaddress.
This is only valid when the projector has a firmware version 2.1 or higher installed.

Specifications

Parameter	Value
Reference specification	HDBaseT 1.0 Specification, June 2010
Connector	Standard RJ-45, 8P8C
Signal characteristics	HDBaseT
Max. cable length (1080p/48b/60Hz)	100 m (Cat5e/6), Pixel Clock <=225HHz, Video Datarate <=5.3Gbps 70 m (Cat5e/6), Pixel Clock >225HHz, Video Datarate >5.3Gbps 100 m (Cat6a/7), Pixel Clock >225HHz, Video Datarate >5.3Gbps
Max TMDS Clock Frequency	270 MHz
Max video resolution supported	4096x2160 @30Hz
HDCP Pass-Through	Yes, from Source to Projector
IR Extension	Not Supported
RS-232 Extension	Not Supported
10/100Mbps Ethernet Pass-Through	Not Supported
Fallback to 100BaseTx, IEEE 802.3u	Not Supported
USB Over Centre Tap	Not Supported
Power Over Ethernet	Not Supported
Audio	Not Supported
LEDs - HD Base Status	Operation: Green, Left Link/Mode: Yellow, Right

DMX Chart

B

B.1 DMX chart, Basic

Overview

Ch.	Function	Value	Default	Action
1	Shutter + Intensity	0 - 7	255	Close shutter
		8 - 255		Adjust intensity
2	Function select	0 - 7	0	No function
		8 - 15		Activate first profile preset (If held for 1 second)
		16 - 23		Activate second profile preset (If held for 1 second)
		24 - 31		Activate third profile preset (If held for 1 second)
		32 - 39		Activate fourth profile preset (If held for 1 second)
		40 - 47		Activate fifth profile preset (If held for 1 second)
		48 - 55		Activate sixth profile preset (If held for 1 second)
		56 - 63		Activate seventh profile preset (If held for 1 second)
		64 - 71		Activate eighth profile preset (If held for 1 second)
		72 - 79		Activate ninth profile preset (If held for 1 second)
		80 - 87		Activate tenth profile preset (If held for 1 second)
		88 - 95		Select input 1: HDMI Input (If held for 1 second)[1]
		96 - 103		Select input 2: DisplayPort Input (If held for 1 second)[1]
		104 - 111		Select input 3: SDI Input A (If held for 1 second)[1]
		112 - 119		Select input 4: SDI Input B (If held for 1 second)[1]
		120 - 127		Select input 5: HDBaseT Input 1 (if held for 1 second)[1]
		128 - 135		Select input 6: Quad SDI input (if held for 1 second)[1]
		136 - 143		Select input 7: Quad DP board Input A (if held for 1 second) [2]
		144 - 151		Select input 8: Quad DP board Input B (if held for 1 second)[2]
		152 - 159		Select input 9: Quad DP board Input C (if held for 1 second)[2]
		160 - 167		Select input 10: Quad DP board Input D (if held for 1 second)[2]
		168 - 175		Select input 11: Quad DP board Inputs A-B (if held for 1 second) [2]
		176 - 183		Select input 12: Quad DP board quad column mode (if held for 1 second)[2]
		184 - 207		Reserved for future functionality
		208 - 215		Power on / Light source on (If held for 5 seconds)
		216 - 223		Power down / Light source off (if held for 5 seconds)
		224 - 255		Reserved for future functionality

1. Only when the Quad Combo input board is installed in slot L1
2. Only when the Quad DisplayPort input board is installed in slot L2

B.2 DMX chart, Extended

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

Ch.	Function	Value	Default	Actions
1	Shutter + Intensity	0 - 7	255	Close shutter
		8 - 255		Adjust intensity
2	Brightness	0 - 255	128	Adjusts the brightness between 0 and 100% on input.
3	Contrast	0 - 255	128	Adjusts the contrast between 0 and 100% on input
4	Input selection	0 - 7	0	No function
		8 - 15		Activate first profile preset (If held for 1 second)
		16 - 23		Activate second profile preset (If held for 1 second)
		24 - 31		Activate third profile preset (If held for 1 second)
		32 - 39		Activate fourth profile preset (If held for 1 second)
		40 - 47		Activate fifth profile preset (If held for 1 second)
		48 - 55		Activate sixth profile preset (If held for 1 second)
		56 - 63		Activate seventh profile preset (If held for 1 second)
		64 - 71		Activate eighth profile preset (If held for 1 second)
		72 - 79		Activate ninth profile preset (If held for 1 second)
		80 - 87		Activate tenth profile preset (If held for 1 second)
		88 - 95		Select input 1: HDMI Input (If held for 1 second)[1]
		96 - 103		Select input 2: DisplayPort Input (If held for 1 second)[1]
		104 - 111		Select input 3: SDI Input A (If held for 1 second)[1]
		112 - 119		Select input 4: SDI Input B (If held for 1 second)[1]
		120 - 127		Select input 5: HDBaseT Input 1 (if held for 1 second)[1]
		128 - 135		Select input 6: Quad SDI input (if held for 1 second)[1]
		136 - 143		Select input 7: Quad DP board Input A (if held for 1 second) [2]
		144 - 151		Select input 8: Quad DP board Input B (if held for 1 second)[2]
		152 - 159		Select input 9: Quad DP board Input C (if held for 1 second)[2]
		160 - 167		Select input 10: Quad DP board Input D (if held for 1 second)[2]
		168 - 175		Select input 11: Quad DP board Inputs A-B (if held for 1 second) [2]
		176 - 183		Select input 12: Quad DP board quad column mode (if held for 1 second)[2]
		184 - 255		Reserved for future functionality
5	Focus (MSB)	0 - 255	128	Set coarse lens focus adjustment[3]
6	Focus (LSB)	0 - 255	128	Set fine lens focus adjustment[5]
7	Zoom (MSB)	0 - 255	128	Set coarse lens zoom adjustment[5]
8	Zoom (LSB)	0 - 255	128	Set fine lens zoom adjustment[5]

3. Only when lens has been calibrated

Ch.	Function	Value	Default	Actions
9	Lens shift vertical (MSB)	0 - 255	128	Set coarse lens shift in vertical direction
10	Lens shift vertical (LSB)	0 - 255	128	Set fine lens shift in vertical direction
11	Lens shift horizontal (MSB)	0 - 255	128	Set coarse lens shift in horizontal direction
12	Lens shift horizontal (LSB)	0 - 255	128	Set fine lens shift in horizontal direction
13	Light Source Power[4]	0 - 3	0	Set light source to 100%
		4 - 7		Set light source to 95%
		8 - 11		Set light source to 90%
		12 - 15		Set light source to 85%
		16 - 20		Set light source to 80%
		21 - 23		Set light source to 75%
		24 - 27		Set light source to 70%
		28 - 31		Set light source to 65%
		32 - 35		Set light source to 60%
		36 - 39		Set light source to 55%
		40 - 43		Set light source to 50%
		44 - 47		Set light source to 45%
		48 - 51		Set light source to 40%
		52 - 55		Set light source to 35%
		56 - 59		Set light source to 30%
		60 - 63		Set light source to 25%
		64 - 67		Set light source to 20%
		68 - 71		Set light source to 15%
		72 - 75		Set light source to 10%
		76 - 79		Set light source to 5%
		80 - 87		Power on / Light source on (If held for 5 seconds)
		88- 95		Power down / Light source off (if held for 5 seconds)
		96 - 255		Reserved for future functionality
14	Various	0 - 7	0	Reserved for future functionality
		8 - 15		Calibrate lens zoom & focus (if held for 5 seconds)
		16 - 23		Calibrate lens horizontal and vertical shift (if held for 5 seconds)
		24 - 31		Calibrate lens (zoom, focus and shift) (if held for 5 seconds)
		32 - 255		Reserved for future functionality

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

Overview on UDX, UDM, Njord and Hodr

Ch.	Function	Value	Default	Actions
1	Shutter + Intensity	0 - 7	255	Close shutter
		8 - 255		Adjust intensity
2	Brightness	0 - 255	128	Adjusts the brightness between 0 and 100% on input.
3	Contrast	0 - 255	128	Adjusts the contrast between 0 and 100% on input
4	Input selection	0 - 7	0	No function
		8 - 15		Activate first profile preset (If held for 1 second)
		16 - 23		Activate second profile preset (If held for 1 second)
		24 - 31		Activate third profile preset (If held for 1 second)
		32 - 39		Activate fourth profile preset (If held for 1 second)
		40 - 47		Activate fifth profile preset (If held for 1 second)
		48 - 55		Activate sixth profile preset (If held for 1 second)
		56 - 63		Activate seventh profile preset (If held for 1 second)
		64 - 71		Activate eighth profile preset (If held for 1 second)
		72 - 79		Activate ninth profile preset (If held for 1 second)
		80 - 87		Activate tenth profile preset (If held for 1 second)
		88 - 95		Select input 1: HDMI Input (If held for 1 second)[1]
		96 - 103		Select input 2: DisplayPort Input (If held for 1 second)[1]
		104 - 111		Select input 3: SDI Input A (If held for 1 second)[1]
		112 - 119		Select input 4: SDI Input B (If held for 1 second)[1]
		120 - 127		Select input 5: HDBaseT Input 1 (if held for 1 second)[1]
		128 - 135		Select input 6: Quad SDI input (if held for 1 second)[1]
		136 - 143		Select input 7: Quad DP board Input A (if held for 1 second) [2]
		144 - 151		Select input 8: Quad DP board Input B (if held for 1 second)[2]
		152 - 159		Select input 9: Quad DP board Input C (if held for 1 second)[2]
		160 - 167		Select input 10: Quad DP board Input D (if held for 1 second)[2]
		168 - 175		Select input 11: Quad DP board Inputs A-B (if held for 1 second) [2]
		176 - 183		Select input 12: Quad DP board quad column mode (if held for 1 second)[2]
		184 - 255		Reserved for future functionality
5	Focus (MSB)	0 - 255	128	Set coarse lens focus adjustment[5]
6	Focus (LSB)	0 - 255	128	Set fine lens focus adjustment[5]
7	Zoom (MSB)	0 - 255	128	Set coarse lens zoom adjustment[5]
8	Zoom (LSB)	0 - 255	128	Set fine lens zoom adjustment[5]
9	Lens shift vertical (MSB)	0 - 255	128	Set coarse lens shift in vertical direction

5. Only when lens has been calibrated

Ch.	Function	Value	Default	Actions
10	Lens shift vertical (LSB)	0 - 255	128	Set fine lens shift in vertical direction
11	Lens shift horizontal (MSB)	0 - 255	128	Set coarse lens shift in horizontal direction
12	Lens shift horizontal (LSB)	0 - 255	128	Set fine lens shift in horizontal direction
13	Light Source Power[6]	0	0	Set light source to 100%
		1 - 61		Set light source to value From 100% to 40% in 1% reductions (e.g. 11 is 90%, 26 is 75%, etc)
		64		Set light source to 35%
		67		Set light source to 30%
		70		Set light source to 25%
		73		Set light source to 20%
		76		Set light source to 15%
		79		Set light source to 10%
		80 - 87		Power on / Light source on (If held for 5 seconds)
		88- 95		Power down / Light source off (if held for 5 seconds)
		96 - 255		Reserved for future functionality
14	Various	0 - 7	0	Reserved for future functionality
		8 - 15		Calibrate lens zoom & focus (if held for 5 seconds)
		16 - 23		Calibrate lens horizontal and vertical shift (if held for 5 seconds)
		24 - 31		Calibrate lens (zoom, focus and shift) (if held for 5 seconds)
		32 - 255		Reserved for future functionality

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

Overview video timings for video interfaces

C

About resolution in this chapter

Resolutions and video timings indicated in the following sections are resolutions accepted in input of the projector, but the output stays limited to the maximum resolution indicated in the specifications of the device.

C.1 Overview video timings

List of compatible signals

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

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

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

Resolution	Vertical refresh rate (Hz)	Compatible signal				
		HDMI 2.0 Input	12G SDI	DisplayPort 1.2 Inputs	HDBaseT Input	DVI Inputs
2048 x 1080	60	X	X	X	X	X
2048 x 1080	120	—	—	X	—	—
2560 x 1600	50	X	—	X	X	X
2560 x 1600	60	X	—	X	X	X
2560 x 1600	120	—	—	X	—	—
3840 x 2160	24	X	—	X	X	X
3840 x 2160	25	X	—	X	X	X
3840 x 2160	30	X	—	X	X	X
3840 x 2160	50	X	X	X	—	—
3840 x 2160	60	X	X	X	—	—
3840 x 2400	24	—	—	—	—	X
3840 x 2400	25	—	—	—	—	X
3840 x 2400	30	—	—	—	—	X
3840 x 2400	50	X	—	X	—	—
3840 x 2400	60	X	—	X	—	—
4096 x 2160	24	X	—	X	X	X
4096 x 2160	25	X	—	X	X	X
4096 x 2160	30	X	—	X	X	X
4096 x 2160	50	X	X	X	—	—
4096 x 2160	60	X	X	X	—	—

C.2 Overview video timings SDI Inputs

Overview

The following standard video formats are available for the projector.

Video timing (active pixels x active lines)	Vertical refresh rate (Hz)[7]	Type	Port Type
1280 x 720	24	HD-SDI	Single Link & Quad Link
1280 x 720	25	HD-SDI	Single Link & Quad Link
1280 x 720	30	HD-SDI	Single Link & Quad Link
1280 x 720	50	HD-SDI	Single Link & Quad Link
1280 x 720	60	HD-SDI	Single Link & Quad Link
1920 x 1080	24	HD-SDI	Single Link & Quad Link
1920 x 1080	25	HD-SDI	Single Link & Quad Link
1920 x 1080	30	HD-SDI	Single Link & Quad Link
1920 x 1080	50	3G-SDI	Single Link & Quad Link
1920 x 1080	60	3G-SDI	Single Link & Quad Link
1920 x 1200	50	3G-SDI “BarcoLink”	Single Link & Quad Link
1920 x 1200	59.94	3G-SDI “BarcoLink”	Single Link & Quad Link
1920 x 1200	60	3G-SDI “BarcoLink”	Single Link & Quad Link
2048 x 1080	50	3G-SDI	Single Link & Quad Link
2048 x 1080	60	3G-SDI	Single Link & Quad Link
3840 x 2160	50	12G-SDI [8]	Single Link
3840 x 2160	60	12G-SDI[8]	Single Link
3840 x 2400	50		Single Link
3840 x 2400	59.94		Single Link
3840 x 2400	60		Single Link
4096 x 2160	50	12G-SDI[8]	Single Link
4096 x 2160	60	12G-SDI[8]	Single Link

7. Support for refresh rates 24.00, 30.00 and 60.00 Hz automatically includes support of 1/1.001 x those refresh rates.
8. 12G SDI board only, and only on Channel A

C.3 Overview video timings HDMI 2.0 inputs

Overview

The following standard video formats are available for the projector.

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

Video timing (active pixels x active lines)	Vertical refresh rate (Hz)	3D support?
640 x 480	60	
720 x 480	60	
720 x576	50	
800 x 600	60	
1024x 768	60	
1280 x720	50	Frame packing Top – bottom
1280 x 720	60	Frame packing Top – bottom
1280 x 800	60	
1280 x 960	60	
1280 x1024	60	
1400 x 1050	60	
1600 x 1200	60	
1920 x 1080	24	Frame packing Top – bottom
1920 x 1080	25	
1920 x 1080	30	
1920 x 1080	50	Side by Side (SbS) progressive
1920 x 1080	60	Side by Side (SbS) progressive
1920 x 1200	50	
1920 x 1200	60	
2048 x 1080	24	
2048 x 1080	25	
2048 x 1080	30	
2048 x 1080	48	
2048 x 1080	50	
2048 x 1080	60	
2560 x 1600	50	
2560 x 1600	60	
3840 x 2160	24	

Video timing (active pixels x active lines)	Vertical refresh rate (Hz)	3D support?
3840 x 2160	25	
3840 x 2160	30	
3840 x 2160	50	
3840 x 2160	60	
3840 x 2400	50	
3840 x 2400	60	
4096 x 2160	24	
4096 x 2160	25	
4096 x 2160	30	
4096 x 2160	50	
4096 x 2160	60	

C.4 Overview video timings DisplayPort 1.2 inputs

Overview

The following standard video formats are available for the projector.

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

Video timing (active pixels x active lines)	Vertical refresh rate (Hz)	Available layout modes, other than standard layout (1 x 1 layout)	Support for 3D?
640 x 480	60		
800 x 600	60		
1024x 768	60		
1280 x720	50		
1280 x 720	60		
1280 x 800	60		
1280 x 960	60		
1280 x1024	60		
1280 x 1600	60	2 Column mode (2 x 1 layout)	
1280 x 1600	120	2 Column mode (2 x 1 layout)	Active 3D
1400 x 1050	60		
1600 x 1200	60		
1600 x 1200	120		Active 3D
1920 x 1080	50		
1920 x 1080	60		
1920 x 1080	120		Active 3D
1920 x 1200	50		
1920 x 1200	60		
1920 x 1200	120		Active 3D
1920 x 2160	60	2 Column mode (2 x 1 layout)	
1920 x 2160	120	2 Column mode (2 x 1 layout)	Active 3D
1920 x 2400	60	2 Column mode (2 x 1 layout)	
1920 x 2400	120		Active 3D
2048 x 1080	24		
2048 x 1080	25		
2048 x 1080	30		
2048 x 1080	48		

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

C.5 Overview video timings HDBaseT input

Overview

The following standard video formats are available for the projector.

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

Video timing (active pixels x active lines)	Vertical refresh rate (Hz)	3D Support
640 x 480	60	
720 x 480	60	
720 x576	50	
800 x 600	60	
1024x 768	60	
1280 x720	50	Frame Packing. Top – Bottom
1280 x 720	60	Frame Packing. Top – Bottom
1280 x 800	60	
1280 x 960	60	
1280 x1024	60	
1400 x 1050	60	
1600 x 1200	60	
1920 x 1080	24	Frame Packing. Top – Bottom
1920 x 1080	25	
1920 x 1080	30	
1920 x 1080	50	Side by Side (SbS) progressive
1920 x 1080	60	Side by Side (SbS) progressive
1920 x 1200	50	
1920 x 1200	60	
1920 x 2160	50	
1920 x 2160	60	
2048 x 1080	24	
2048 x 1080	25	
2048 x 1080	30	
2048 x 1080	48	
2048 x 1080	50	
2048 x 1080	60	
2048 x 2160	50	
2048 x 2160	60	
2560 x 1600	50	
2560 x 1600	60	

Video timing (active pixels x active lines)	Vertical refresh rate (Hz)	3D Support
3840 x 2160	24	
3840 x 2160	25	
3840 x 2160	30	
4096 x 2160	24	
4096 x 2160	25	
4096 x 2160	30	

C.6 Overview video timings DVI Inputs

Overview

The following standard video formats are available for the projector.

Video timing (active pixels x active lines)	Vertical refresh rate (Hz)	Available layout modes, other than standard layout (1 x 1 layout)
640 x 480	60	
800 x 600	60	
1024 x 768	60	
1280 x 720	50	
1280 x 720	60	
1280 x 800	60	
1280 x 960	60	
1280 x 1024	60	
1400 x 1050	60	
1600 x 1200	60	
1920 x 1080	24	
1920 x 1080	25	
1920 x 1080	30	
1920 x 1080	50	
1920 x 1080	60	
1920 x 1200	50	
1920 x 1200	60	
1920 x 2160	60	2 - column mode
1920 x 2400	60	2 - column mode
2048 x 1080	24	
2048 x 1080	25	
2048 x 1080	30	
2048 x 1080	48	
2048 x 1080	50	
2048 x 1080	60	
2048 x 2160	60	2 - column mode
2560 x 1600	50	
2560 x 1600	60	
3840 x 2160	24	
3840 x 2160	25	
3840 x 2160	30	
3840 x 2160	30	

Video timing (active pixels x active lines)	Vertical refresh rate (Hz)	Available layout modes, other than standard layout (1 x 1 layout)
3840 x 2400	24	
3840 x 2400	25	
3840 x 2400	30	
4096 x 2160	24	
4096 x 2160	25	
4096 x 2160	30	

Regulatory information

D

D.1 Contact information

Contact address

Barco NV
Beneluxpark 21, 8500 Kortrijk, Belgium

Importers contact information

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

Registered offices

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

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

D.2 Production address

Made in information

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

Production date

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

Factory addresses

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

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

D.3 Product compliance EU

Disposal Information

Waste Electrical and Electronic Equipment (WEEE)

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

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

Disposal of batteries in the product

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

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

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

EMC notices Europe

EN55032/CISPR32 Class A MME (MultiMedia Equipment)

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

D.4 Product compliance UK

UK Compliance

This product is fit for use in the UK.

Authorised Representative: Barco UK Ltd

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

D.5 Product compliance US

Federal Communications Commission (FCC Statement)

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interference, in which case the user will be responsible for correcting any interference at his own expense

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

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

D.6 Product compliance Turkey

Turkey RoHS compliance

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

D.7 Product compliance EAC

EurAsian Conformity (EAC)

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

D.8 Product compliance China

EMC notices China

GB/T 9254.1 A级ITE(信息技术设备)

警告：在居住环境中，运行此设备可能会造成无线电干扰。

中国大陆 RoHS (Information for China ROHS compliance)

根据中国大陆《电器电子产品有害物质限制使用管理办法》（也称为中国大陆RoHS），以下部分列出了Barco产品中可能包含的有毒和/或有害物质的名称和含量。

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

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

本表格依据SJ/T 11364的规定编制

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

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

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

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

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

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

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

D.9 Product compliance Taiwan

Product info

Image D–1

product name 產品名稱:

projector 投影機

model 型號: GP6 / GP7

EMC notices Taiwan

BSMI Taiwan Class A statement

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

BSMI Reporting Obligor Information / 報驗義務人資訊

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

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

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

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

	限用物質及其化學符號 Restricted substances and its chemical symbols					
單元 Unit	鉛 Lead (Pb)	汞 Mercu- ry (Hg)	鎘 Cadmi- um (Cd)	六價鉻 Hexava- lent chromi- um (Cr6+)	多溴聯苯 Polybromi- nated biphenyls (PBB)	多溴二苯醚 Polybromi- nated diphenyl ethers (PBDE)
印製電路板配件 Printed Circuit Assemblies	—	O	—	O	O	O
外接電（線）纜 External Cables	—	O	O	O	O	O
內部線路 Internal wiring	—	O	O	O	O	O
鏡頭支架 Lensholder	—	O	O	O	O	O
螺絲組件 Nuts, bolts, screws, washers, Fasteners	—	O	O	O	O	O

	限用物質及其化學符號 Restricted substances and its chemical symbols					
單元 Unit	鉛 Lead (Pb)	汞 Mercu- ry (Hg)	鎘 Cadmi- um (Cd)	六價鉻 Hexava- lent chromi- um (Cr6+)	多溴聯苯 Polybromi- nated biphenyls (PBB)	多溴二苯醚 Polybromi- nated diphenyl ethers (PBDE)
雷射 Laser	—	O	O	O	O	O
電源供應器 Power Supply Unit	—	O	O	O	O	O
風扇 Fan	—	O	O	O	O	O
遙控器 Remote control	—	O	O	O	O	O

備考1.〝超出0.1 wt %〞及〝超出0.01 wt %〞係指限用物質之百分比含量超出百分比含量基準值。

Note 1：“Exceeding 0.1 wt %” and “exceeding 0.01 wt %” indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition.

備考2.〝O〞係指該項限用物質之百分比含量未超出百分比含量基準值。

Note 2：“O” indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.

備考3.〝—〞係指該項限用物質為排除項目。

Note 3：The “—” indicates that the restricted substance corresponds to the exemption.

備註: 此RoHS表格適用於以下產品型號: GP6,GP7,GP8,GPC

Hint: This RoHS table is suitable for following models: GP6,GP7,GP8,GPC

D.10 Trademark notice

HDMI™

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

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

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D.11 Product privacy statement

About

Learn more about Barco's Product Privacy Statement: *https://www. barco. com/en/about/trust-center/product-privacy-statement*

Which data is captured and why

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

Data retention mechanism

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

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

Glossary

Broadcast address

Projector will always execute the command coming from a RCU programmed with that broadcast address.

HD

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

Projector address

Address installed in the projector to be individually controlled via the RCU or via the serial communication.

Projector address

Address installed in the projector to be individually controlled.

List of tools

Projector Toolset

Index

U

V

W

X

601-0443EN /15 | 2024-07-08