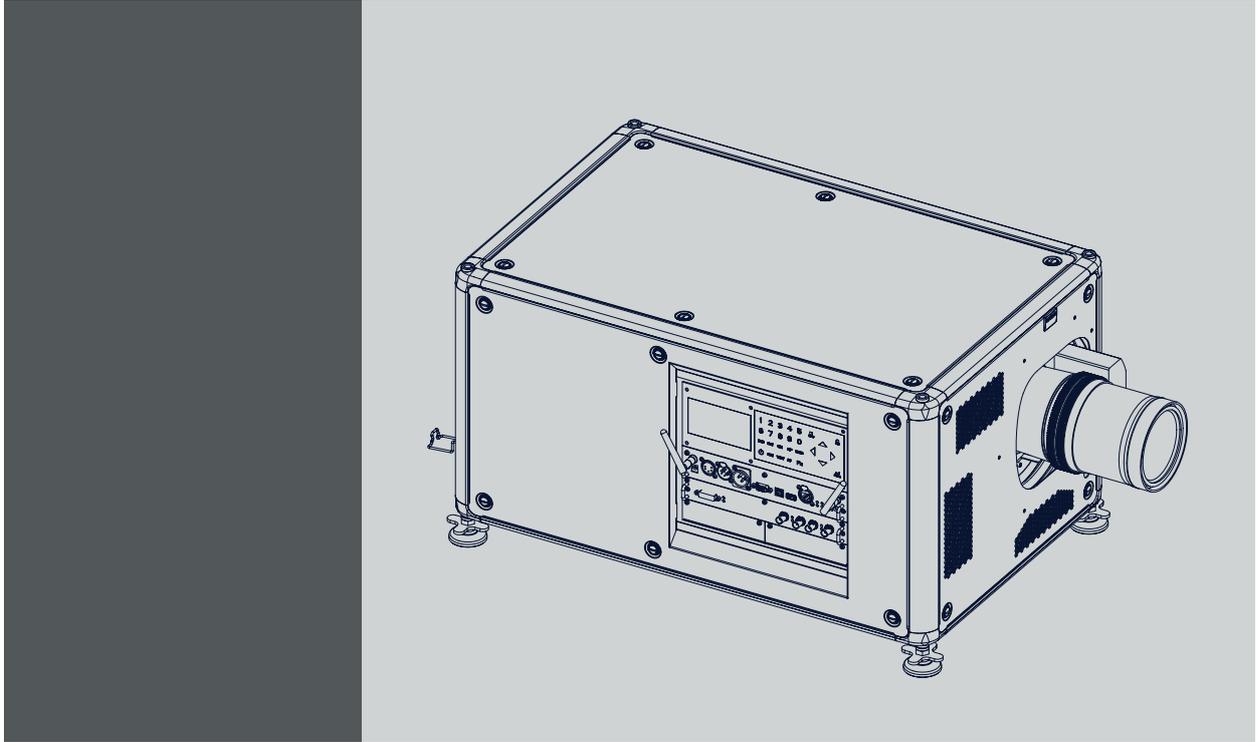


HDX series



Installation manual

Product revision

Software version: 1.2.14

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Changes

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EN55022/CISPR22 Class A ITE (Information Technology Equipment)

Class A ITE is a category of all other ITE which satisfies the class A ITE limits but not the class B ITE limits. Such equipment should not be restricted in its sale but the following warning shall be included in the instructions for use:

Warning : This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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

GNU-GPL code

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Barco provides a guarantee relating to perfect manufacturing as part of the legally stipulated terms of guarantee. On receipt, the purchaser must immediately inspect all delivered goods for damage incurred during transport, as well as for material and manufacturing faults Barco must be informed immediately in writing of any complaints.

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

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1. SAFETY

About this chapter

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

1.1 General considerations



WARNING: Ensure you understand and follow all the safety guidelines, safety instructions, warnings and cautions mentioned in this manual.



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.



CAUTION: High pressure lamp may explode if improperly handled.

General safety instructions

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

Notice on safety

This equipment is built in accordance with the requirements of the international safety standards IEC60950-1, EN60950-1, UL60950-1 and CAN/CSA C22.2 No.60950-1, which are the safety standards of information technology equipment including electrical business equipment. 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.

Users definition

Throughout this manual, the term SERVICE PERSONNEL refers to persons having appropriate technical training and experience necessary to be knowledgeable of potential hazards to which they are exposed (including, but not limited to HIGH VOLTAGE ELECTRIC and ELECTRONIC CIRCUITRY and HIGH BRIGHTNESS PROJECTORS) in performing a task, and of measures to minimize the potential risk to themselves or other persons. The term USER and OPERATOR refers to any person other than SERVICE PERSONNEL, AUTHORIZED to operate professional projection systems.

A HDX projector is intended "FOR PROFESSIONAL USE ONLY" by AUTHORIZED PERSONNEL familiar with potential hazards associated with high voltage, high intensity light beams, ultraviolet exposure and high temperatures generated by the lamp and associated circuits. Only qualified SERVICE PERSONNEL, knowledgeable of such risks, are allowed to perform service functions inside the product enclosure.

1.2 Important safety instructions

To prevent the risk of electrical shock

- This product should be operated from a mono phase AC power source.
- 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.
If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the purpose of the grounding-type plug.
- Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord. To disconnect the cord, pull it out by the plug. Never pull the cord itself.
- Use only the power cord supplied with your device. While appearing to be similar, other power cords have not been safety tested at the factory and may not be used to power the device. For a replacement power cord, contact your dealer.
- Do not operate the projector with a damaged cord. Replace the cord.
Do not operate the projector if the projector has been dropped or damaged - until it has been examined and approved for operation by a qualified service technician.
- Position the cord so that it will not be tripped over, pulled, or contact hot surfaces.
- If an extension cord is necessary, a cord with a current rating at least equal to that of the projector should be used. A cord rated for less amperage than the projector may overheat.
- Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electrical shock.
- Do not expose this projector to rain or moisture.
- Do not immerse or expose this projector in water or other liquids.
- Do not spill liquid of any kind on this projector.
- Should any liquid or solid object fall into the cabinet, unplug the set and have it checked by qualified service personnel before resuming operations.
- Do not disassemble this projector, always take it to 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.

To prevent personal injury

- Isolate electrically before replacing the lamp or lamp house. Caution: Hot lamp (house).
- Caution: High pressure lamp may explode if improperly handled. Refer servicing to qualified service personnel.
- To prevent injury and physical damage, always read this manual and all labels on the system before inserting the lamp casing, connecting to the wall outlet or adjusting the projector.
- To prevent injury, take note of the weight of the projector. Minimum 4 persons are needed to carry 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.
- Before attempting to remove any of the projector's covers, you must turn off the projector and disconnect from the wall outlet.
- When required to switch off the projector, to access parts inside, always disconnect the power cord from the power net.
- The power input at the projector side is considered as the disconnect device. When required to switch off the projector, to access parts inside, always disconnect the power cord at the projector side. In case the power input at the projector side is not accessible (e.g. ceiling mount), the socket outlet supplying the projector shall be installed nearby the projector and be easily accessible, or a readily accessible general disconnect device shall be incorporated in the fixed wiring.
- Never stack more than two (2) HDX projectors in a hanging configuration (truss) and never stack more than three (3) HDX projectors in a base stand configuration (table mount).
- When using the projector in a hanging configuration, always mount 2 safety cables. See installation manual for the correct use of these cables.
- Do not place this equipment on an unstable cart, stand, or table. The product may fall, causing serious damage to it and possible injury to the user.
- It is hazardous to operate without lens or shield. Lenses, shields or ultra violet screens shall be changed if they have become visibly damaged to such an extent that their effectiveness is impaired. For example by cracks or deep scratches.
- **Warning: Protection from ultraviolet radiation:** Do not look directly in the light beam. The lamp contained in this product is an intense source of light and heat. One component of the light emitted from this lamp is ultraviolet light. Potential eye and skin hazards are present when the lamp is energized due to ultraviolet radiation. Avoid unnecessary exposure. Protect yourself and your employees by making them aware of the hazards and how to protect themselves. Protecting the skin can be accomplished by wearing tightly woven garments and gloves. Protecting the eyes from UV can be accomplished by wearing safety glasses that are designed to provide UV protection. In addition to the UV, the visible light from the lamp is intense and should also be considered when choosing protective eye wear.
- **Exposure to UV radiation:** Some medications are known to make individuals extra sensitive to UV radiation. The American Conference of Governmental Industrial Hygienists (ACGIH) recommends occupational UV exposure for an 8 hour day to be less than 0,1 micro-watts per square centimeters of effective UV radiation. An evaluation of the workplace is advised to assure employees are not exposed to cumulative radiation levels exceeding these government guidelines. The exposor of this UV radiation is allowed for only 1 hour per day for maintenance and service persons.

- **Cooling liquid circuit.** The projector contains a cooling circuit filled with Blue antifreeze diluted (1/3 ethanediol – 2/3 Demi water).
When the cooling circuit leaks, switch off the device and contact a service technician.
The liquid is not for household use. Keep out of reach of children. Harmful by oral intake. Avoid exposure to pregnant women. Avoid contact with eyes, skin and clothing. Avoid inhale of the noxious fumes.

To prevent fire hazard

- Do not place flammable or combustible materials near the projector!
- Barco large screen projection products are designed and manufactured to meet the most stringent safety regulations. This projector radiates heat on its external surfaces and from ventilation ducts during normal operation, which is both normal and safe. Exposing flammable or combustible materials into close proximity of this projector could result in the spontaneous ignition of that material, resulting in a fire. For this reason, it is absolutely necessary to leave an "exclusion zone" around all external surfaces of the projector whereby no flammable or combustible materials are present. The exclusion zone must be not less than 40 cm (16") for all DLP projectors. The exclusion zone on the lens side must be at least 5 m. Do not cover the projector or the lens with any material while the projector is in operation. Keep flammable and combustible materials away from the projector at all times. Mount the projector in a well ventilated area away from sources of ignition and out of direct sun light. Never expose the projector to rain or moisture. In the event of fire, use sand, CO₂ or dry powder fire extinguishers. Never use water on an electrical fire. Always have service performed on this projector by authorized Barco service personnel. Always insist on genuine Barco replacement parts. Never use non-Barco replacement parts as they may degrade the safety of this projector.
- Slots and openings in this equipment are provided for ventilation. To ensure reliable operation of the projector and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the projector too close to walls, or other similar surface. This projector should never be placed near or over a radiator or heat register. This projector should not be placed in a built-in installation or enclosure unless proper ventilation is provided.
- Projection rooms must be well ventilated or cooled in order to avoid build up of heat.
- Let the projector cool down completely before storing. Remove cord from the projector when storing.
- Heat sensitive materials should not be placed in the path of the exhausted air or on the lamp house.

To prevent projector damage

- This projector has been designed for use with a specific lamp (house) type. See installation instructions for its correct type.
- The air filters of the projector must be cleaned or replaced on regular base (a "clean" booth would be monthly-minimum). Neglecting this could result in disrupting the air flow inside the projector, causing overheating. Overheating may lead to the projector shutting down during operation.
- The projector must always be installed in a manner which ensures free flow of air into its air inlets and unimpeded evacuation of the hot air from its cooling system.
- In order to ensure that correct airflow is maintained, and that the projector complies with Electromagnetic Compatibility (EMC) requirements, it should always be operated with all of its covers in place.
- Slots and openings in the cabinet are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register. The device should not be placed in a built-in installation or enclosure unless proper ventilation is provided.
- Ensure that nothing can be spilled on, or dropped inside the projector. If this does happen, switch off and unplug the mains supply immediately. Do not operate the projector again until it has been checked by qualified service personnel.
- Do not block the projector cooling fans or free air movement around the projector. Loose papers or other objects may not be nearer to the projector than 10 cm (4") on any side.
- Do not use this equipment near water.
- **Special care for Laser Beams:** Special care should be used when DLP projectors are used in the same room as high power laser equipment. Direct or indirect hitting of a laser beam on to the lens can severely damage the Digital Mirror Devices™ in which case there is a loss of warranty.
- Never place the projector in direct 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.
- Rated maximum ambient temperature, $t_a = 40\text{ }^\circ\text{C}$ (104 °F).
- The lamp house shall be replaced if it has become damaged or thermally deformed.

On servicing

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



CAUTION: Xenon compact arc lamps are highly pressurized. When ignited, the normal operating temperature of the bulb increases the pressure to a level at which the bulb may explode if not handled in strict accordance to the manufacturer's instructions. The bulb is stable at room temperature, but may still explode if dropped or otherwise mishandled. Whenever the lamp house, containing a xenon lamp, has to be dismantled or whenever the protective container or cloth has to be removed from the xenon lamp, authorized protective clothing MUST be worn!

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.

1.3 Important warnings concerning HDX flight cases

Important warnings concerning stacking/transporting HDX rental flight cases

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

2. GENERAL

About this chapter

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

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

Overview

- Installation requirements
- Unpacking the projector
- Initial inspection
- HDX flight case
- Projector configurations
- Projector air inlets and outlets
- Free download of Projector Toolset
- Installation process overview



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

2.1 Installation requirements

Environment conditions

Table below summarizes the physical environment in which the HDX projector may be safely operated or stored.

| Environment | Operating | Non-Operating |
|---------------------|---------------------------------|----------------------------------|
| Ambient Temperature | 10 °C (50 °F) to 40 °C (104 °F) | -15°C (5°F) to 60°C (140°F) |
| Humidity | 5% to 85% RH Non-condensed | 5% to 95% RH Non-Condensed |
| Altitude | -60 (-197Ft) to 3000m (9843Ft) | -60 (-197Ft) to 10000m (32810Ft) |



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

Cooling requirements

The projector is fan cooled and must be installed with sufficient space around the projector head, minimum 10 cm (4 inch) to ensure sufficient air flow. It should be used in an area where the ambient temperature, as measured at the projector air inlet, does not exceed +40°C (+104°F).

Clean air environment

A projector must always be mounted in a manner which ensures the free flow of clean air into the projectors ventilation inlets. For installations in environments where the projector is subject to airborne contaminants such as that produced by smoke machines or similar (these deposit a thin layer of greasy residue upon the projectors internal optics and imaging electronic surfaces, degrading performance), then it is highly advisable and desirable to have this contamination removed prior to it reaching the projectors clean air supply. Devices or structures to extract or shield contaminated air well away from the projector are a prerequisite, if this is not a feasible solution then measures to relocate the projector to a clean air environment should be considered.

Only ever use the manufacturer's recommended cleaning kit which has been specifically designed for cleaning optical parts, never use industrial strength cleaners on the projector's optics as these will degrade optical coatings and damage sensitive optoelectronics components. Failure to take suitable precautions to protect the projector from the effects of persistent and prolonged air contaminants will culminate in extensive and irreversible ingrained optical damage. At this stage cleaning of the internal optical units will be noneffective and impracticable. Damage of this nature is under no circumstances covered under the manufacturer's warranty and may deem the warranty null and void. In such a case the client shall be held solely responsible for all costs incurred during any repair. It is the clients responsibility to ensure at all times that the projector is protected from the harmful effects of hostile airborne particles in the environment of the projector. The manufacturer reserves the right to refuse repair if a projector has been subject to knowingly neglect, abandon or improper use.

Main Power requirements

The HDX projector operates from a nominal mono phase power net with a separate earth ground PE.

| Projector | Power requirements |
|-----------|--------------------------------------|
| HDX W12 | 200-240VAC, 50-60Hz, 11A at 200 VAC |
| HDX W14 | 200-240 VAC, 50-60Hz, 14A at 200 VAC |

The power cord required to connect the projector with the power net is delivered with the projector.

Projector weight

Do not underestimate the weight of the HDX projector. The projector weights about ±50 kg (±111 lb.) without lens. Be sure that the pedestal on which the projector has to be installed is capable of handling five (5) times the complete load of the system.

2.2 Unpacking the projector

What has to be done ?

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



After unpacking let the projector acclimatizes to a room temperature higher than 10°C (50°F) and lower than 40°C (104°F). Neglecting this may result in a start up failure of the Light Processor Unit.

Necessary tools

cutter knife

How to unpack

1. Remove the banding around the carton box, by releasing the fastening clips as illustrated, and open the box.

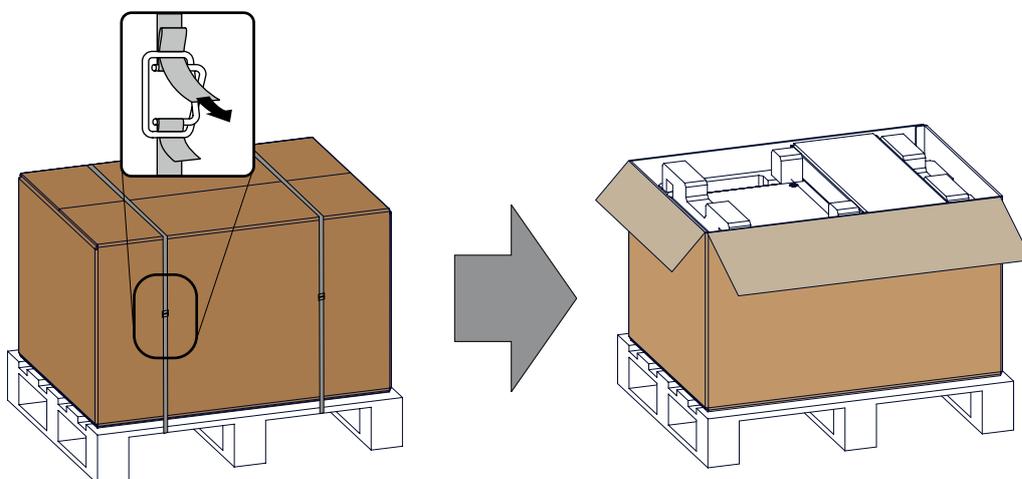


Image 2-1
Opening box

2. Remove the small box on top of the projector. This box contains the accessories such as manuals, remote control, etc.

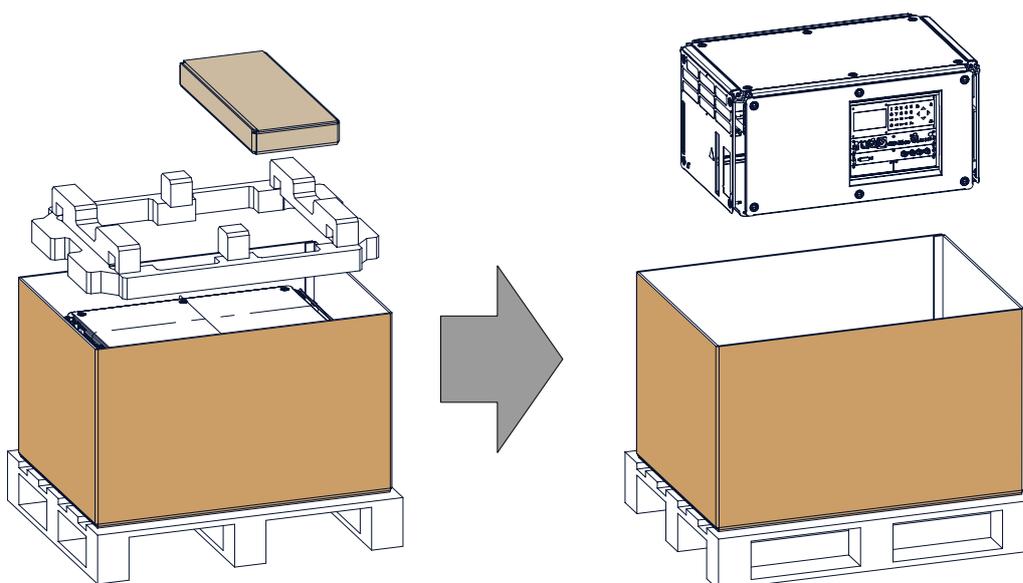


Image 2-2
Remove carton and foam rubber

3. Take out the foam rubber.
4. Take out the projector.

2. General



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



A rubber foam inside a plastic bag is placed into the lens opening of the projector. It's recommended to reuse this foam and plastic back each time you transport the projector. This to prevent intrusion of dust and foreign particles.



The lens is delivered in a separate box.

2.3 Initial inspection

General

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



The packaging of the HDX projector is provided with a shock-watch label. If this shock-watch label was triggered (red colored at arrival) during transport, that indicates that the package was possibly roughly handled by the transport company. In this case, the instructions mentioned on the label, should be followed, which are: adding a note on the “bill of lading” and informing the transport company and the Barco sales and service office as soon as possible.

Box content

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

- Three power cords of 2.5 meter, one CEE (7), one NEMA L6-20P and one CH2–16P
- This manual (installation manual).
- One Safety manual
- One remote control unit (RCU)
- Two AA size batteries for the RCU.



One xenon lamp is mounted inside the lamp house at delivery. The projector lenses are not included in the package of the projector.

Mechanical check

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

2.4 HDX flight case

Introduction of the HDX flight case

The HDX flight case is designed to transport the HDX projector in a safe and secure manner. The four caster wheels, provided with breaks, and the four handles make the HDX flight case easy to handle. The floor of the flight case wagon is equipped with two small covered compartments to store the remote control and the rigging clamps.

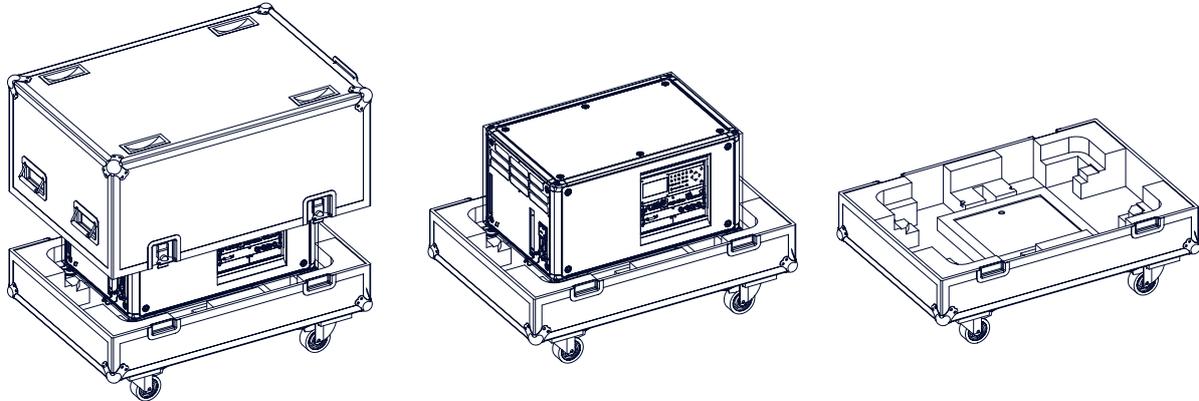


Image 2-3
HDX Flight case

Order number flight case: **R9864090**

The dimensions of the flight case are optimal for maximum utilization of the floor area of a truck. The cover of the FLM light case has 4 stacking dishes, which allows to stack the flight cases.



WARNING: Maximum stack two (2) HDX flight cases high. Never higher.

2.5 Projector configurations

The different configurations

Depending on the installation the projector can be mounted in different ways, the different configurations are:

1. Front / Table (F/T)
2. Front / Ceiling (F/C) (upside down)
3. Front / Ceiling (F/C) (table position)
4. Rear / Table (R/T)
5. Rear / Ceiling (R/C) (upside down)
6. Rear / Ceiling (R/C) (table position)

Front projection

The projector is installed, either in a table mount or ceiling mount configuration, at the same side of the screen as the audience.

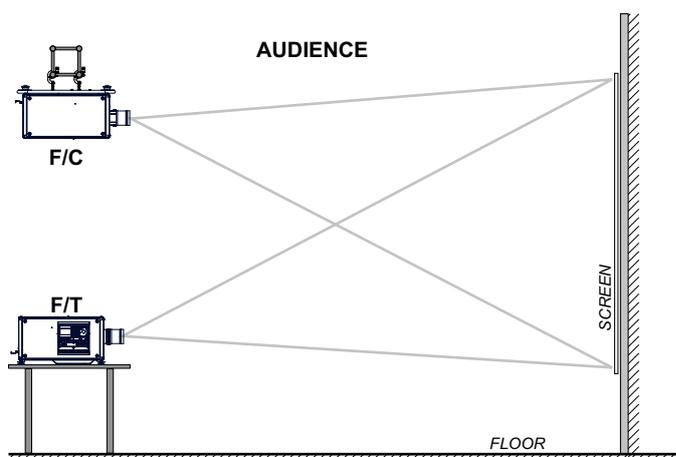


Image 2-4
Front projection

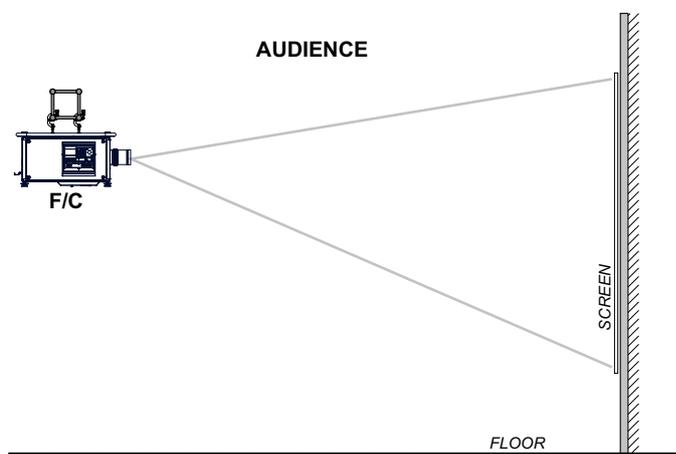


Image 2-5
Front projection, Ceiling mounted, in table position

Rear projection

The projector is installed, either in a table mount or ceiling mount configuration, at the other side of the screen opposite the audience.

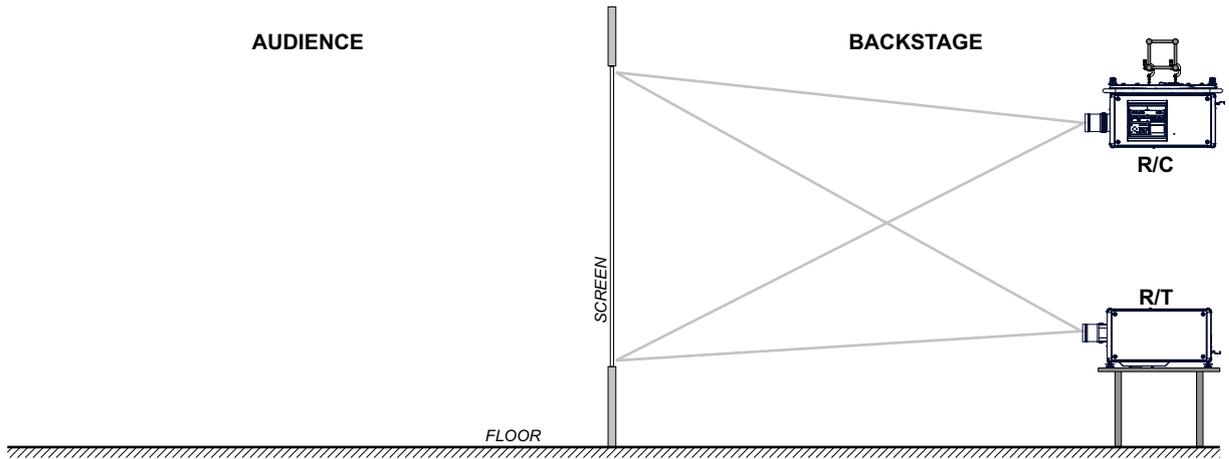


Image 2-6
Rear projection

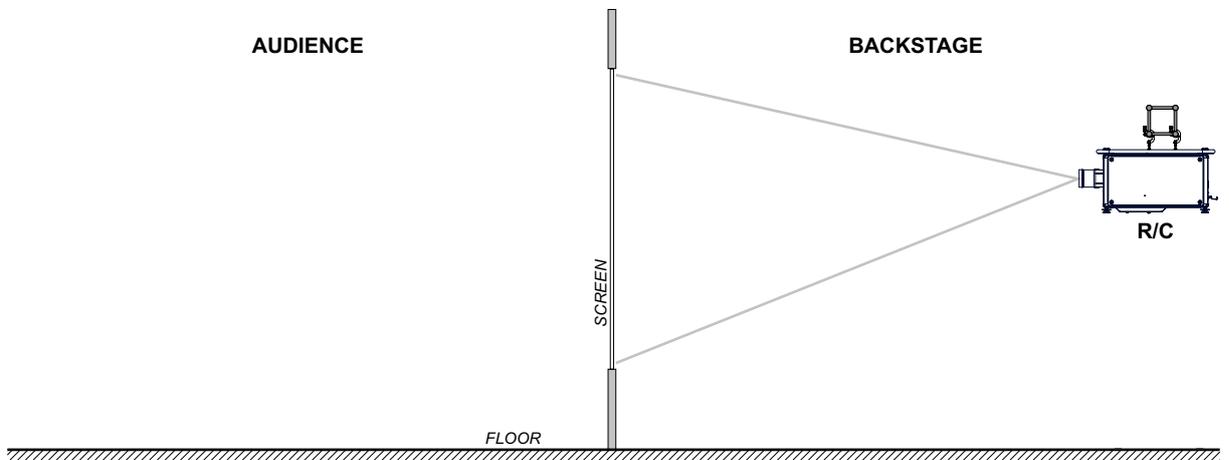


Image 2-7
Rear projection, ceiling mounted in table position

Positioning the projector

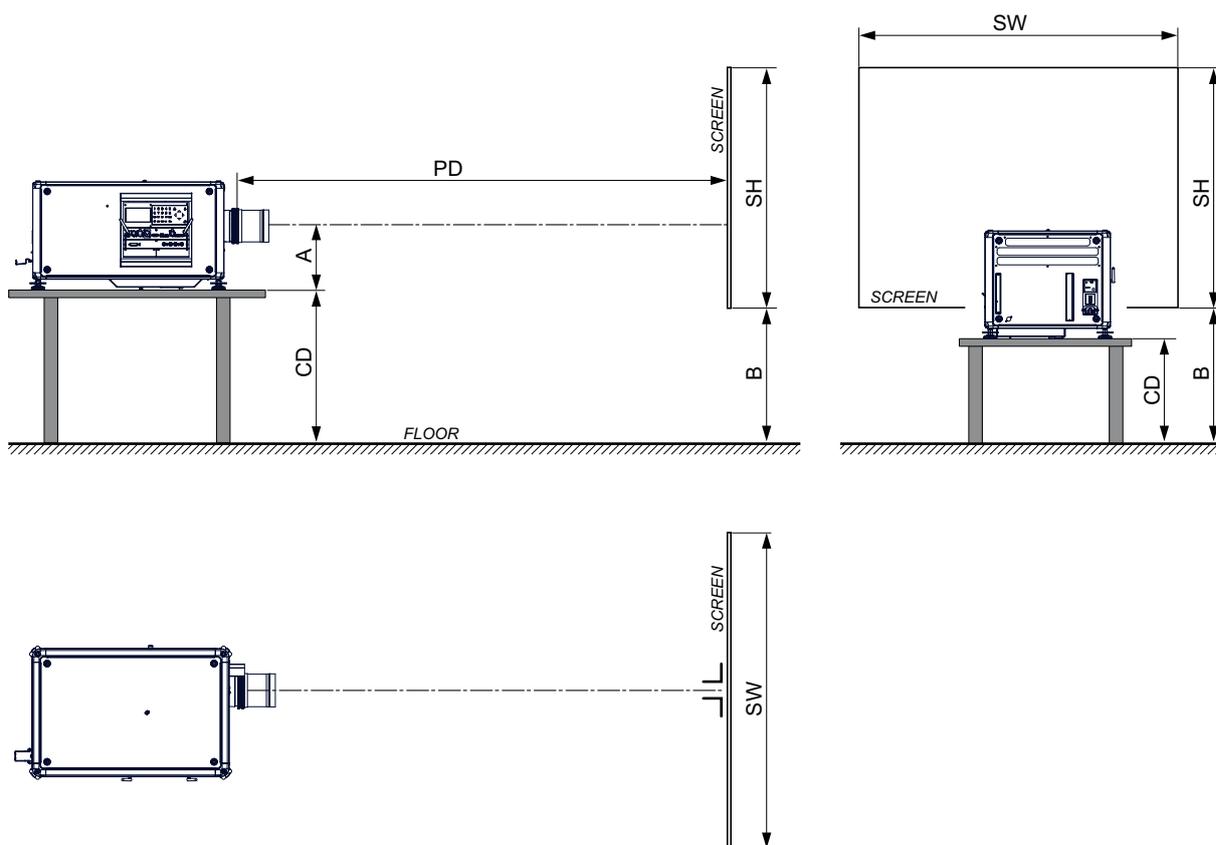


Image 2-8
Positioning projector

The projector should be installed at right angles (horizontally and vertically) to the screen at a distance PD. Note the distance (A) between lens centre and table surface is slightly variable. This distance (A) is nominal 35 cm in case all feet are turned in completely and the vertical lens shift is set to zero (0).

On axis / off axis projection

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

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

Shift range

The lens can be shifted with respect to the DMD (P) which result in a shifted image on the screen (Off-Axis). A 100% shift means that the centre point of the projected image is shifted by half the screen size. In other words, the centre point of the projected image falls together with the outline of the image in an On-Axis projection. Due to mechanical and optical limitations it's recommended to keep the shift values within the field of view (F) as illustrated below. Within these shift ranges the projector and lens perform excellently. Configuring the projector outside these shift ranges will result in a slight decline of image quality.

2. General

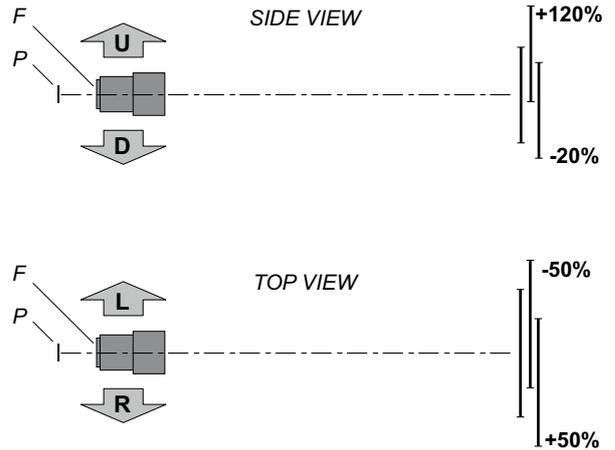
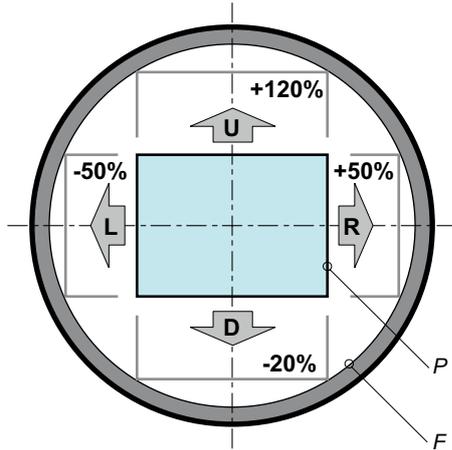


Image 2-9
Vertical and horizontal shift range

P DMD.
F Field of view.



It is mechanical possible to shift outside the recommended field of view, but it will result in a decline of image quality depending on the used lens and the zoom position of the used lens. Furthermore, shifting too much in both directions will result in a blurred image corner.



Best image quality is projected in the On-Axis configuration.

Horizontal and vertical projector tilt ranges

The projector can be rotated and mounted at any vertical angle. In other words, you can tilt the lens side of the projector as much as desired for your application.

Side to side tilt, however, must not exceed $\pm 15^\circ$. This limit ensures that the lamp in the projector operates properly and safely. More tilting within area C is allowed but lamp flicker can happen.

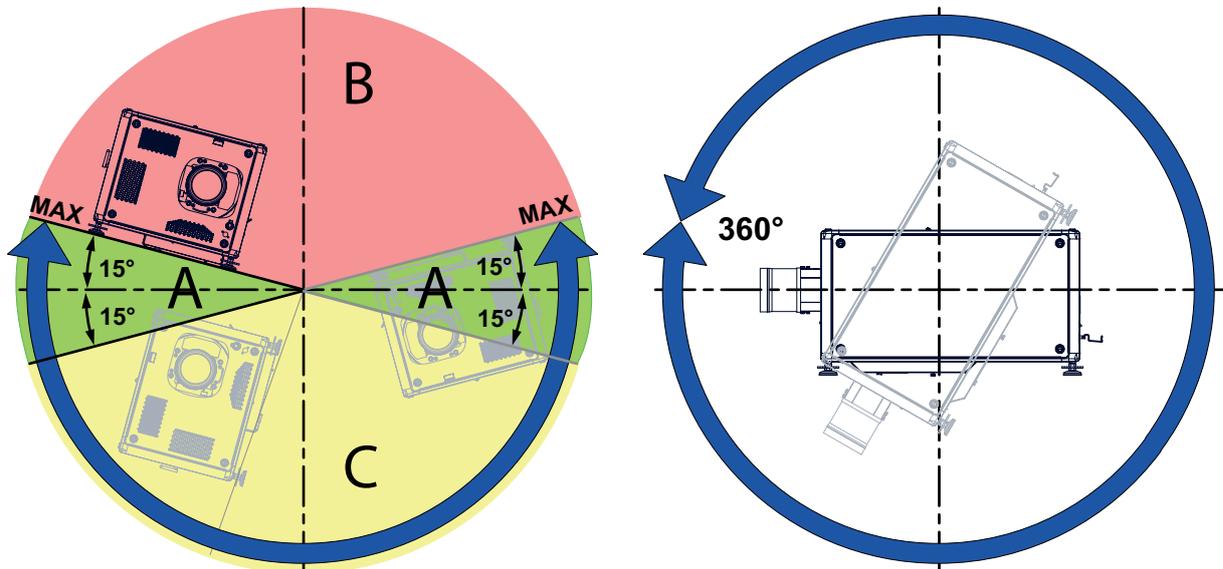


Image 2-10
A Tilting allowed without problems
B No tilting allowed in this area
C Tilting allowed but lamp flicker possible



Projector lamp will not start up when out of tilt range due to build-in tilt sensor.

2.6 Projector air inlets and outlets

Air inlets and outlets

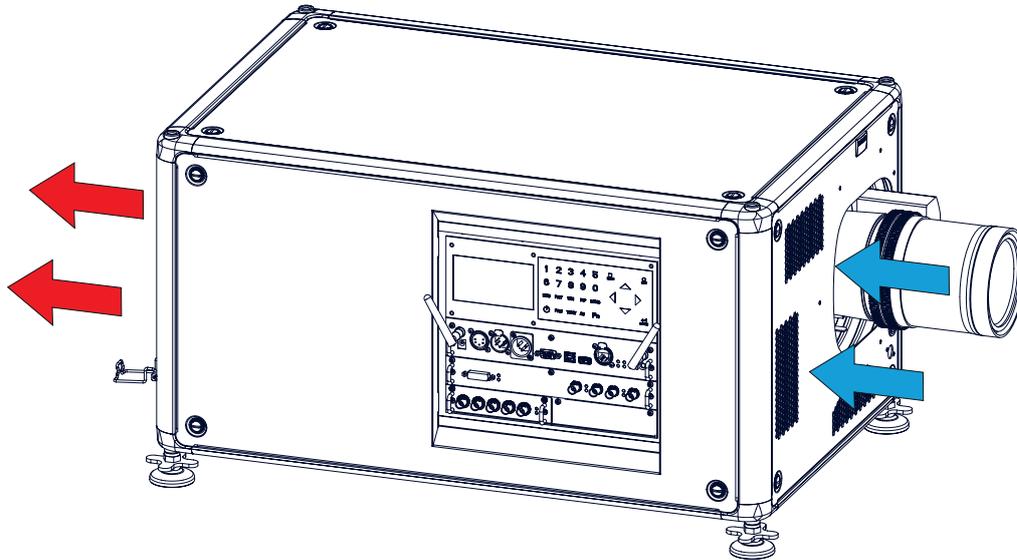


Image 2-11

The HDX projector has 3 air inlet channel and 3 air outlet. The air outlets are located at the rear of the projector. The air inlets are located at the front of the projector.

2.7 Free download of Projector Toolset

About Projector Toolset

Projector Toolset is a software tool to set up, configure, manage and control Barco projectors.

The concept of this Projector Toolset software is modular. The basic package can be extended with several optional device plug-in modules, now and in the future available.

The Projector Toolset software works with configurations that can be loaded. Within a configuration, different snapshots can be taken. A snapshot represents a current state of a configuration and can be reloaded to return to this typical state. These terms will be used through the complete software.

Projector Toolset is a stand-alone application that runs on a Java Virtual Machine and that does not require extra services to run.

Several configurations can be controlled simultaneously. Even when the configurations are connected via different ways.



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

Where to find the download file(s)

The program and all necessary plug-ins, as well as the Reference manual can be downloaded for free from Barco's Partnerzone, URL <https://my.barco.com>. Registration is necessary.

If you are not yet registered, click on Partnerzone registration and follow the instructions. With the created login and password, it is possible to enter the partnerzone where you can download the Projector Toolset software and the device plug-in updates as well as the corresponding reference manual.

When downloading the complete Projector Toolset, this software contains already the latest device plug-ins. When you already have the latest core version of Projector Toolset, it is possible to download only device plug-in updates from the same web site location.

As Projector Toolset is a stand alone application, it is not necessary to install any other software. A Java virtual machine is included with this download.

Installation

Download first the reference manual (Part number: R59770052) and follow the installation instructions as written in this manual.

2.8 Installation process overview

Quick setup

The following steps describe briefly how to setup your HDX projector in a table mount front projection. Note that each step refers to a corresponding procedure, which is more detailed and illustrated.

1. Install the batteries of the remote control. See "RCU battery installation", page 27
2. Place the projector on a solid table in front of the screen at the expected throw distance. Ensure that the projector is installed at right angles (horizontally and vertically) with the screen. See "Projector configurations", page 17.
3. Select and install an appropriate lens, which covers the throw ratio (= screen size / projector screen distance). See "Lenses", page 32.
4. Connect the projector with the local power net. See "Connecting the projector with the power net", page 44.
5. Connect your source to the appropriate input module. See "Input source connections", page 55.
6. Switch ON the projector. See "Power on projector", page 65.
7. Select the input slot to which the source is connected. Do this by pressing the numeric key on the remote control unit or on the local keypad, See "Source selection", page 75.
8. Zoom and shift the lens until the image is properly projected on the screen, Do this by using the "ZOOM" and "FOCUS" key on the remote control unit or on the local keypad. If necessary, level the projector from side to side by turning the adjustable feet in or out.

3. PHYSICAL INSTALLATION

About this projector

This chapter describes how the mechanical set up of the projector has to be done and how to realize the electrical connections.

Overview

- Remote control unit (RCU)
- Lenses
- Connecting the projector with the power net
- Alignment of a table mounted projector
- Mounting the bottom carry handler
- Mounting the top carry handler
- Suspension of the projector with rigging clamps
- Alignment of a ceiling mounted projector

3.1 Remote control unit (RCU)

Introduction

The remote control unit (A) of the HDX projector is equipped with a rugged case (B) and an XLR adaptor (C). The remote control unit can be used wired via mini-jack or via rugged XLR. Note that the backlight, of the remote control unit, illuminate continuously when wire connected.

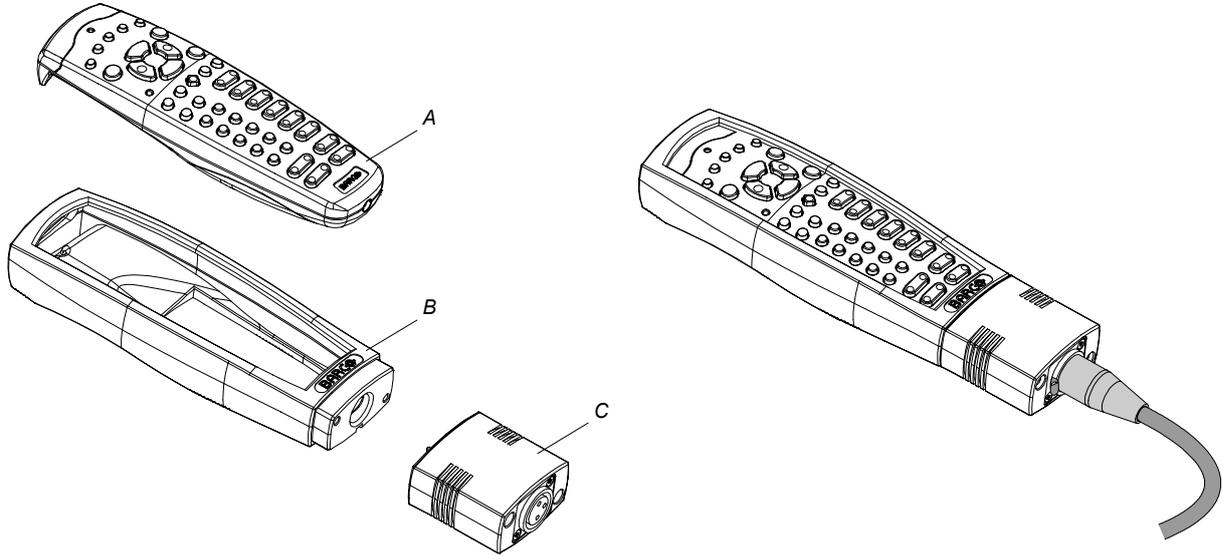


Image 3-1
A Remote control unit (RCU).
B Rugged case.
C XLR adaptor.

Overview

- RCU battery installation
- RCU rugged case installation
- RCU XLR adaptor installation
- Using the XLR adaptor of the RCU
- RCU usage possibilities

3.1.1 RCU battery installation

Where to find the batteries for the remote control ?

The batteries are not placed in the remote control unit to avoid control operation in its package, resulting in a shorter battery life time. At delivery the batteries can be found in a separated bag attached to the remote control unit. Before using your remote control, install the batteries first.

How to install the batteries in the remote control ?

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

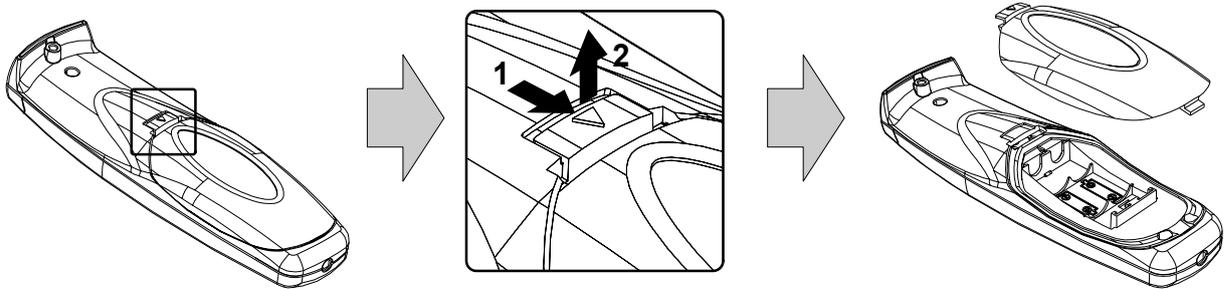


Image 3-2

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

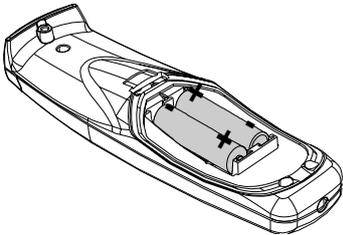


Image 3-3

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

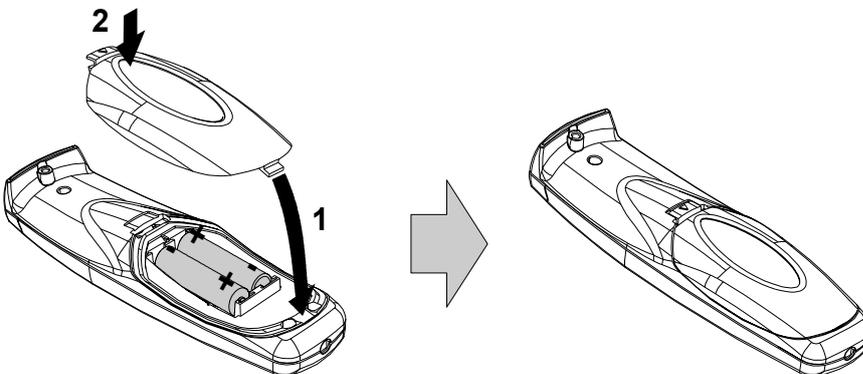


Image 3-4

To prevent battery explosion

- Danger of explosion if battery is incorrectly installed.
- Replace only with the same or equivalent type recommended by the manufacturer.
- Disposal of used batteries must be done according to the manufacturer's instruction.

3.1.2 RCU rugged case installation

How to install the rugged case of the remote control ?

1. Slide the bottom of the RCU into the rugged case and then pull the top of the rugged case over the top of the RCU as illustrated.

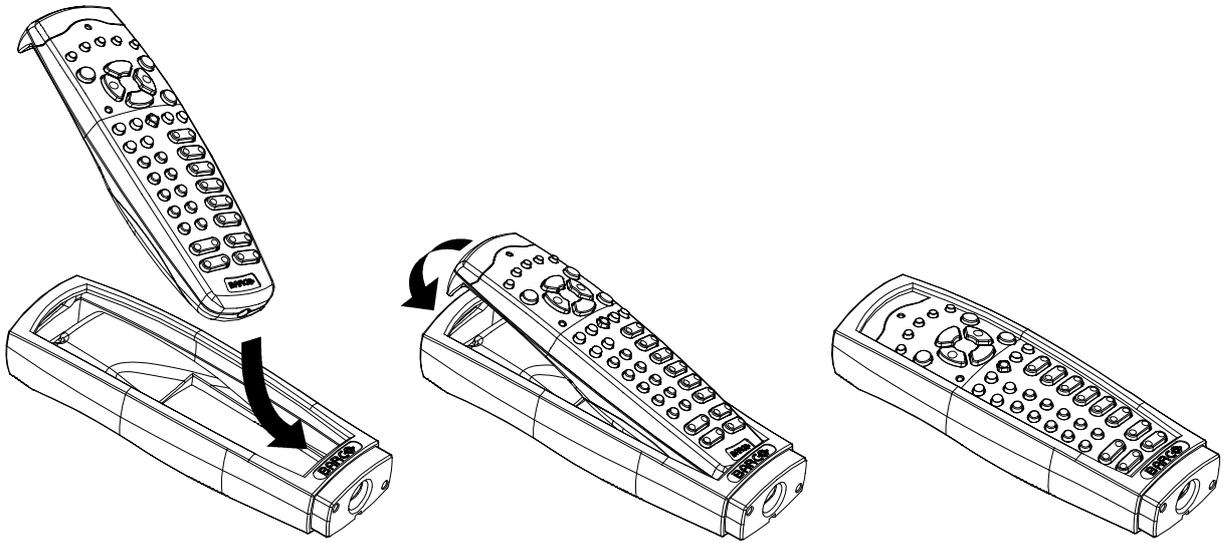


Image 3-5

3.1.3 RCU XLR adaptor installation



Install the rugged case before installing the XLR adaptor. Vice-versa, remove the XLR adaptor before removing the rugged case from the RCU.

Necessary tools

5 mm flat screw driver.

How to install the XLR adaptor of the remote control unit ?

1. Push the XLR adaptor (C) upon the rugged case of the remote control unit as illustrated.

Note: Ensure that the text of the XLR adaptor is on top.

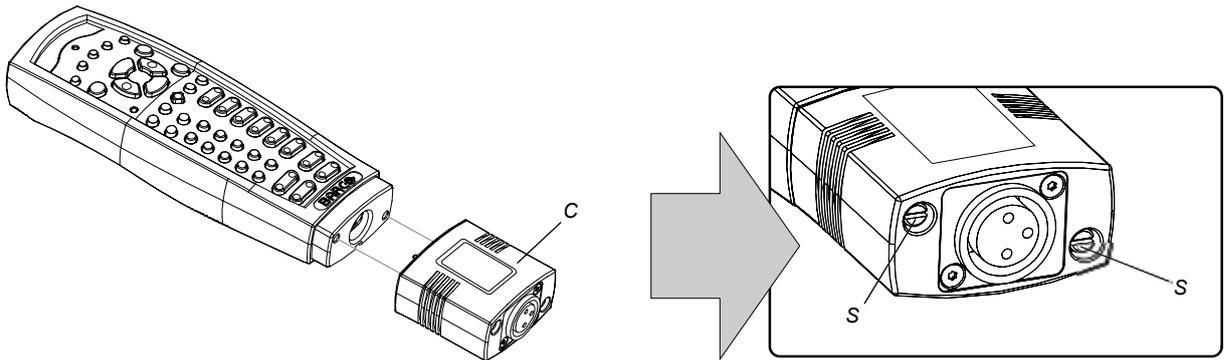


Image 3-6

2. Fasten the two screws (S) of the XLR adaptor. Turn each screw repeatedly one or two turns until both screws are tight.

3.1.4 Using the XLR adaptor of the RCU

How to use the XLR adaptor of the remote control unit ?

1. Connect a cable with XLR plug into the XLR adaptor.
2. Connect the other end of the cable with your HDX projector.
3. Push the XLR adaptor completely against the rugged case of the remote control unit, as illustrated in the left image below, for wired communication. Pull out the XLR adaptor (about 8 mm) to switch over to wireless communication.

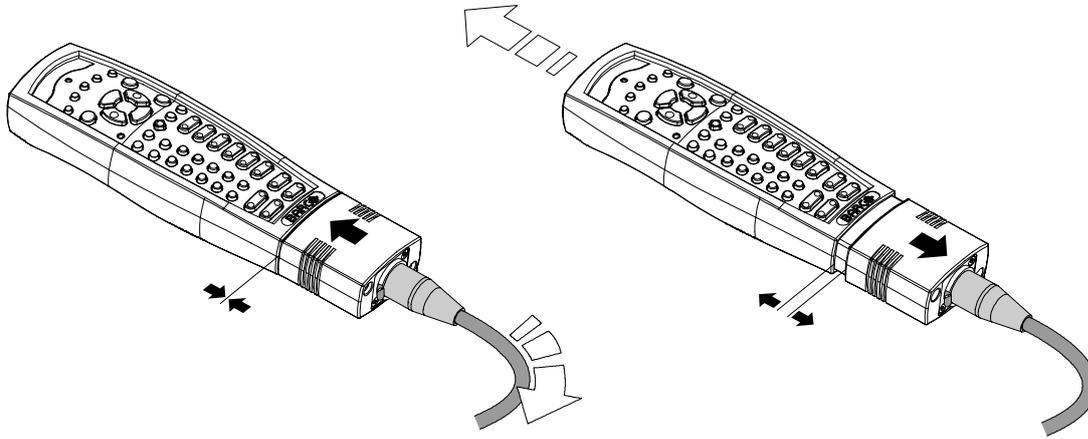


Image 3-7

3.1.5 RCU usage possibilities

Summarized possibilities

| Ref. | Possibility description | Comment |
|------|--|--|
| a. | RCU not wired | |
| b. | RCU wired (mini-jack) | Backlight illuminates continuously when wire is connected. Infra red disabled. |
| c. | RCU with rugged case not wired | |
| d. | RCU with rugged case wired (mini-jack) | Backlight illuminates continuously when wire is connected. Infra red disabled. |
| e. | RCU with rugged case and XLR adaptor pulled out "REMOTE" and not wired | The XLR adaptor must be in the pulled out position "REMOTE", otherwise the RCU will not function. |
| f. | RCU with rugged case and XLR adaptor pulled out "REMOTE" and wired | The RCU will send the commands via infra red to the projector. |
| g. | RCU with rugged case and XLR adaptor pushed in "WIRED" and wired | The RCU will send the commands via the cable connected with the XLR adaptor to the projector. Backlight illuminates continuously when wire is connected. Infra red disabled. |

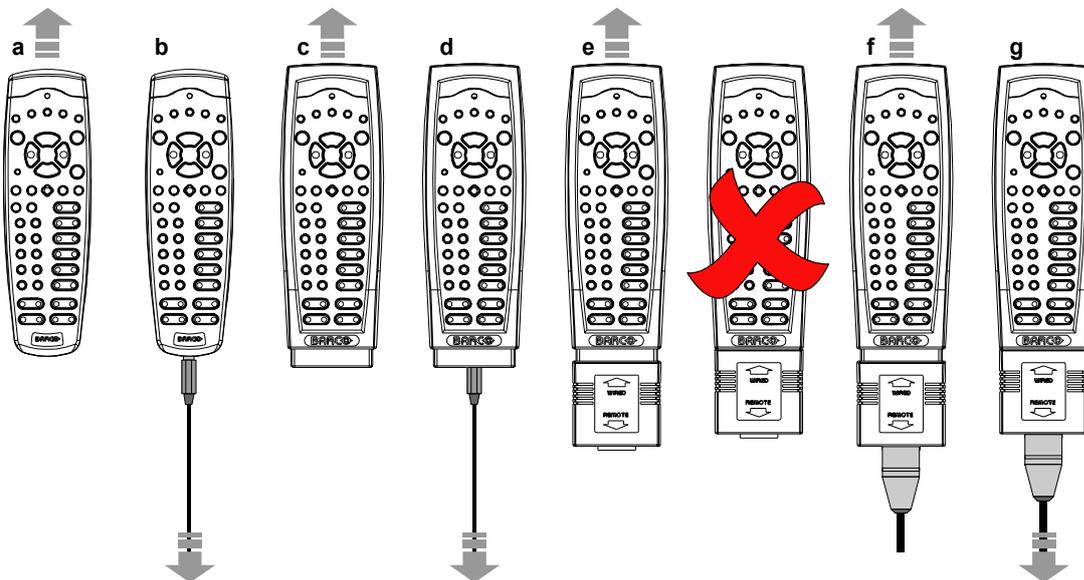


Image 3-8

3.2 Lenses

Overview

- Available lenses
- Lens selection
- Lens installation
- Lens removal
- Lens shift, zoom & focus
- Scheimpflug adjustment

3.2.1 Available lenses

Available lenses for the HDX projector projector

The TLD HB (High Brightness) lens series can be used on the HDX projector projector.



Image 3-9
R9852000: TLD HB fixed lens (0.8 : 1)



Image 3-10
R9840770: TLD fixed lens (1.2 : 1)



Image 3-11
R9840775: TLD+ (1.2 : 1) fixed lens



Image 3-12
R9852010: TLD HB zoom lens (1.6 - 2.0 : 1)



Image 3-13
R9842080: TLD HB zoom lens (2.0 - 2.8 : 1)



Image 3-14
R9862030: TLD HB zoom lens (2.8 - 4.5 : 1)



Image 3-15
R9842120: TLD HB zoom lens (5.0 - 8.0 : 1)



Image 3-16
R9862000: TLD+ lens (0.73 : 1)



Image 3-17
R9862005: TLD+ zoom lens (1.16 - 1.49 : 1)

3. Physical installation



Image 3-18
R9862010: TLD+ zoom lens (1.5 - 2.0 : 1)



Image 3-19
R9862020: TLD+ zoom lens (2.0 - 2.8 : 1)



Image 3-20
R9862030: TLD+ zoom lens (2.8 - 4.5 : 1)



Image 3-21
R9862040: TLD+ zoom lens (4.5 - 7.5 : 1)



Image 3-22
R9829997: TLD+ zoom lens (7.5 - 11.0 : 1)

3.2.2 Lens selection

How to select the right lens

1. Determine the required screen width (SW).
2. Determine the approximate position of the projector in the room.
3. Start up the *Lens Calculator* on the Barco web side : <http://www.barco.com/en/tools/lenscalculator> to determine the possible lenses for your configuration.

The Lens Calculator window opens.

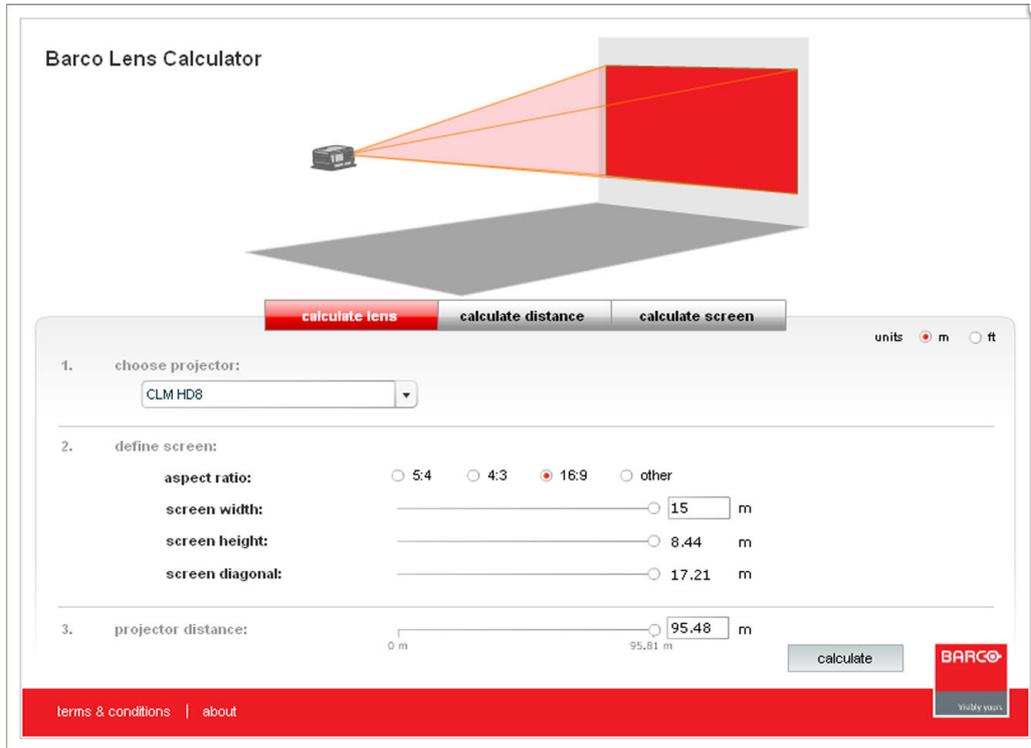


Image 3-23
Lens calculator



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

3. Physical installation

3.2.3 Lens installation

How to install

1. Remove the foam rubber in the opening of the lens holder if not removed yet.
2. Take the lens assembly out of its packing material and remove the lens caps on both sides.
3. Place the lens holder in the "unlocked" position by moving the lens lock handle (A) towards the lens power supply socket (B) as illustrated.

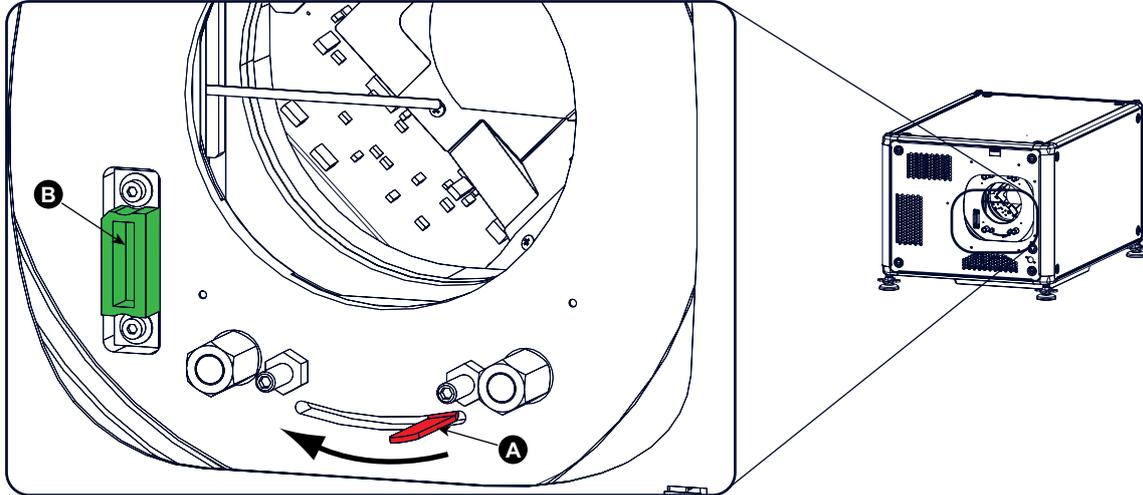


Image 3-24
Lens installation, preparation

4. Ensure that the lens holder stands in the On-Axis position (horizontal and vertical mid position).
Note: The lens holder is placed default in the On-Axis position at factory.
5. Gently insert the lens in such a way that the lens connector matches the socket (B).

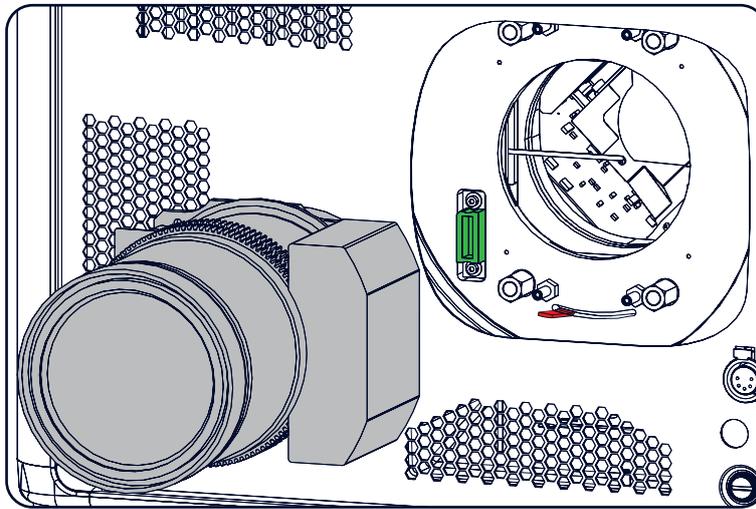


Image 3-25
Lens insertion

6. Insert the lens until the connector seats into the socket.
Warning: Do not release the Lens yet, as the Lens may fall out of the Lens Holder.
7. Secure the lens in the lens holder by sliding the lens lock handle into the "locked" position, which is away from the lens power supply socket. Ensure the lens touches the front plate of the lens holder.

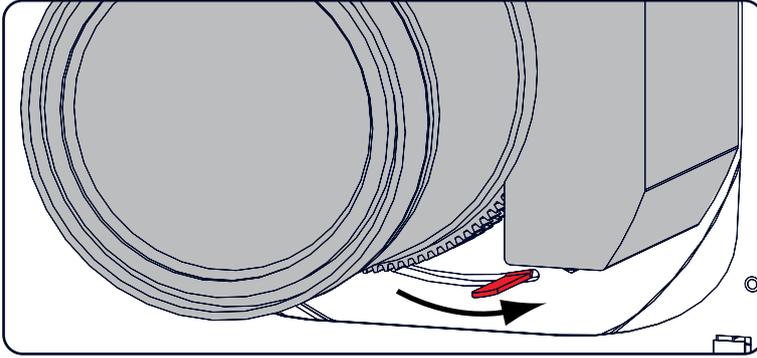


Image 3-26
Lock lens

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



CAUTION: Never transport the projector with a Lens mounted in the Lens Holder. Always remove the Lens before transporting the projector. Neglecting this can damage the Lens Holder and Prism.

3. Physical installation

3.2.4 Lens removal

How to remove

1. Support the lens with one hand while you unlock the lens holder by sliding the lock handle towards the “unlocked” position as illustrated.

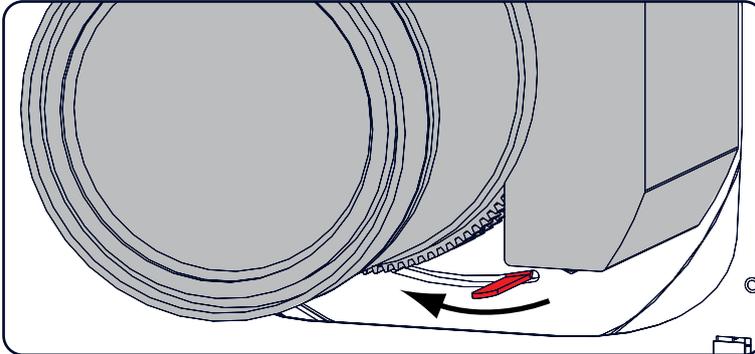


Image 3-27
Lens removal, unlock

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

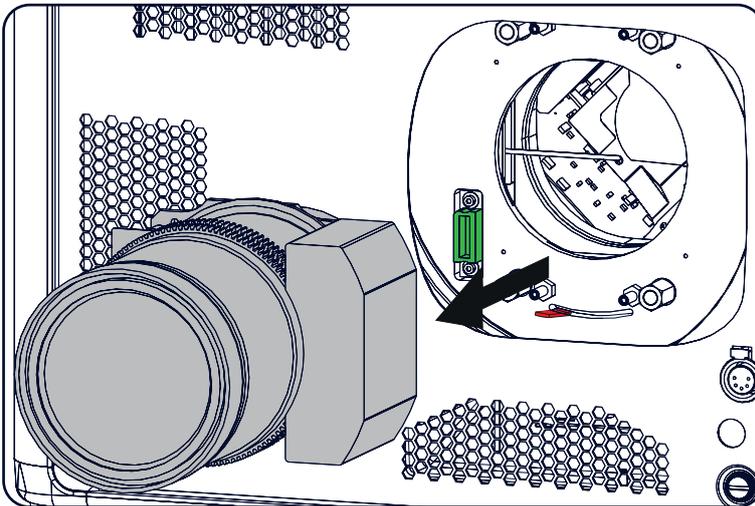


Image 3-28
Lens removal



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



It's recommended to place the foam rubber of the original projector packaging, back in the Lens opening to prevent intrusion of dust. Note that this foam rubber is packed in a plastic bag to prevent the dust, emitted by the foam, from entering the projector.

3.2.5 Lens shift, zoom & focus

Via Lens key

1. Press **LENS** key on the local keypad or the remote control.

The zoom/focus menu opens.

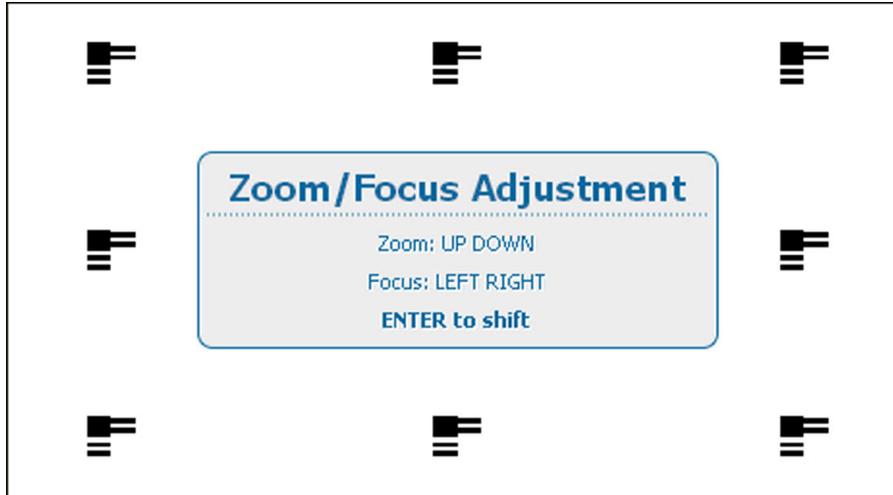


Image 3-29
Zoom/Focus adjustment

2. Use the ▲ or ▼ key to zoom the lens.
Use the ◀ or ▶ key to focus the lens.
Press **ENTER** to switch to Lens shift adjustment.

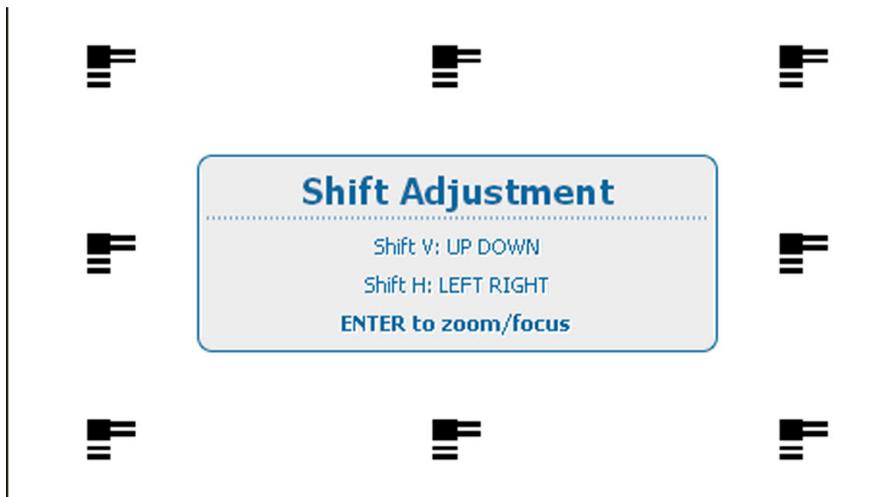


Image 3-30
Shift adjustment

3. Use the ▲ or ▼ key to shift the lens in vertical direction.
Use the ◀ or ▶ key to shift the lens in horizontal direction.
Press **ENTER** to switch to zoom/focus adjustment.

Via direct access keys on the remote control

1. Press **LENS FOCUS** button [-] or [+] (C) for an overall focus of the image.
2. Press ▲ **LENS SHIFT** ▼ button for correct vertical position of the image on the screen.
3. Press ◀ **LENS SHIFT** ▶ button for correct horizontal position of the image on the screen.

3.2.6 Scheimpflug adjustment

What has to be done ?

The lens holder has to be adjusted so that the “sharp focus plane” of the projected image falls together with the plane of the screen (Fp1→Fp2). This is achieved by changing the distance between the DMD plane and the lens plane (Lp1→Lp2). The closer the lens plane comes to the DMD plane the further the sharp focus plane will be. It can sometimes happen that you won't be able to get a complete focused image on the screen due to a tilt (or swing) of the lens plane with respect to the DMD plane. This is also known as Scheimpflug's law. To solve this the lens plane must be placed parallel with the DMD plane. This can be achieved by turning the lens holder to remove the tilt (or swing) between lens plane and DMD plane (Lp3→Lp4).

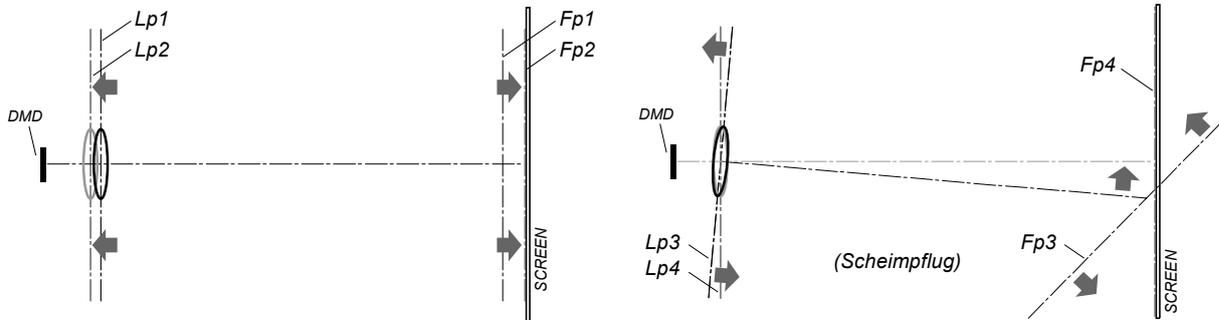


Image 3-31
Scheimpflug principle



Scheimpflug principle

The "plane of sharp focus" can be changed so that any plane can be brought into sharp focus. When the DMD plane and lens plane are parallel, the plane of sharp focus will also be parallel to these two planes. If, however, the lens plane is tilted with respect to the DMD plane, the plane of sharp focus will also be tilted according to geometrical and optical properties. The DMD plane, the principal lens plane and the sharp focus plane will intersect in a line below the projector for downward lens tilt.

Scheimpflug adjustment points

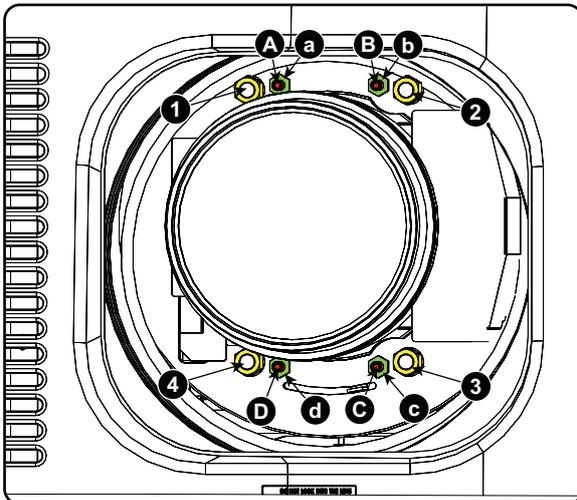


Image 3-32
Scheimpflug adjustments

| Indication on drawing | Function |
|-----------------------|-----------------------------|
| 4 | Locking nut |
| 1, 2 and 3 | Scheimpflug adjustment nuts |
| A, B, C and D | Set screws |
| a, b, c and d | lock nuts |

1, 2 and 3 are adjustment points.

4 is a locking point and NOT used during Scheimpflug adjustment.

Necessary tools

- Allen key 3 mm
- Nut driver 13 mm
- Nut driver 10 mm

How to adjust

1. Project a green focus pattern.

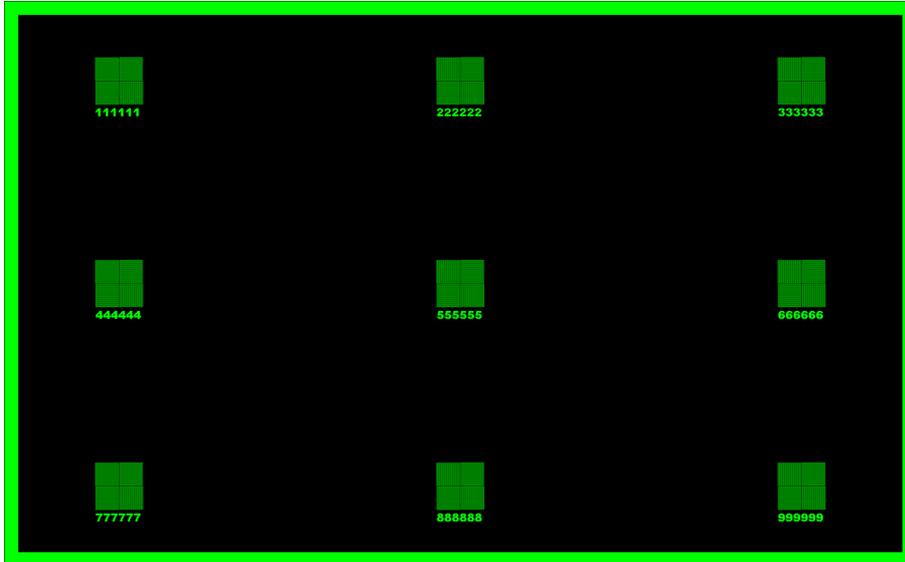
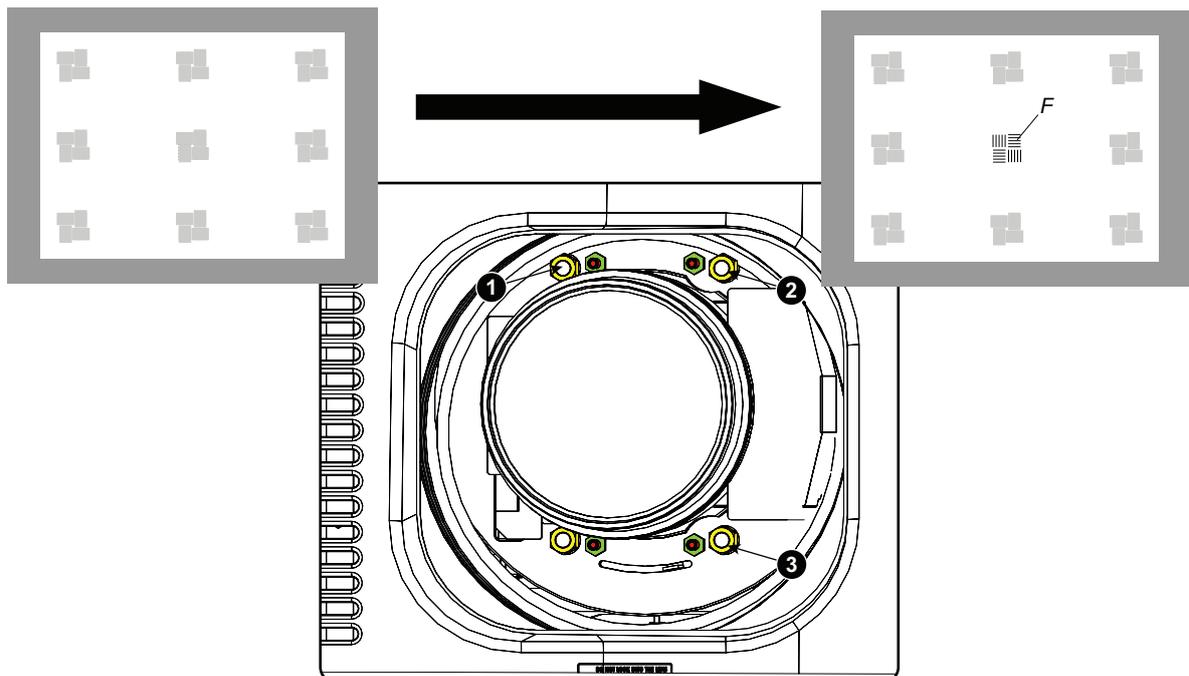


Image 3-33

2. Loosen the lock nuts (a, b, c and d). See image 3-32.
3. Loosen the 4 set screws (A, B, C and D) by 1 cm. See image 3-32.
4. Fully loosen lock nut 4. See image 3-32.
5. Optimize the focus of the projected image as follows:
 - a) Place the zoom lens in TELE position (smallest projected image) and adjust the focus using the lens focus barrel or motorized focus control.
 - b) Place the zoom lens in WIDE position (largest projected image) and adjust the focus by turning equally on nut 1, 2 and 3.
 - c) Repeat steps "a" and "b" until the projected image is as sharp as possible.

Image 3-34
Center focusing

3. Physical installation

6. Sharpen bottom left corner of the screen by adjusting nut 1.

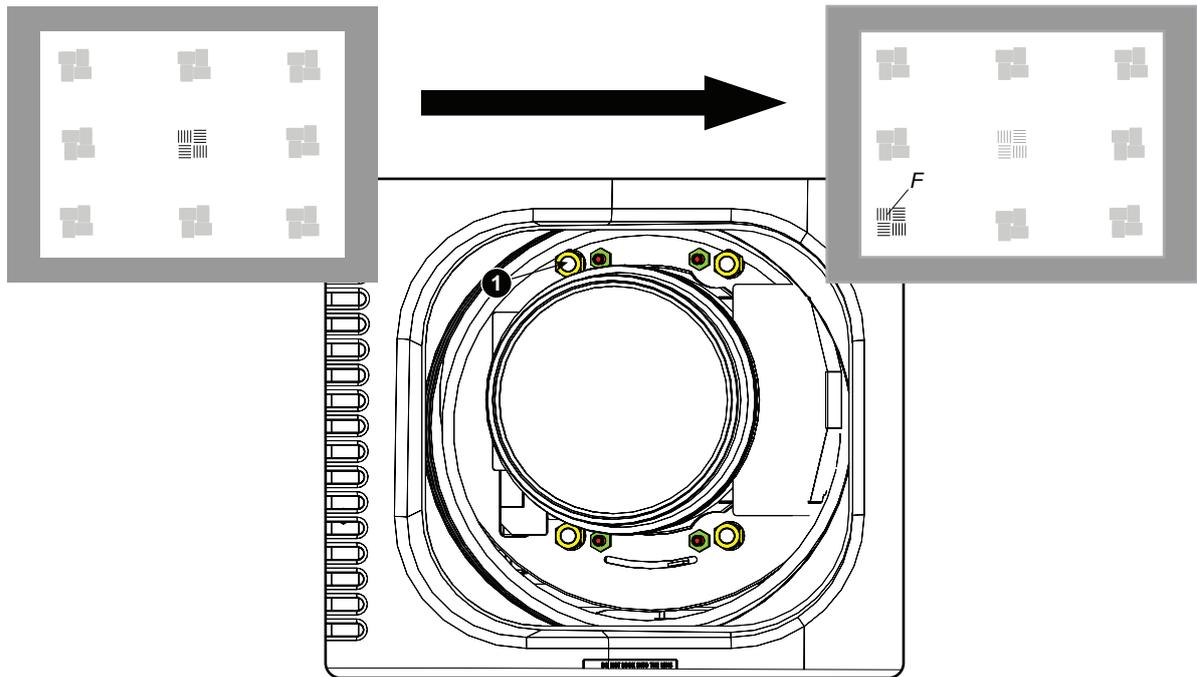


Image 3-35
Left bottom focusing

7. Sharpen bottom right corner of the screen by adjusting nut 2.

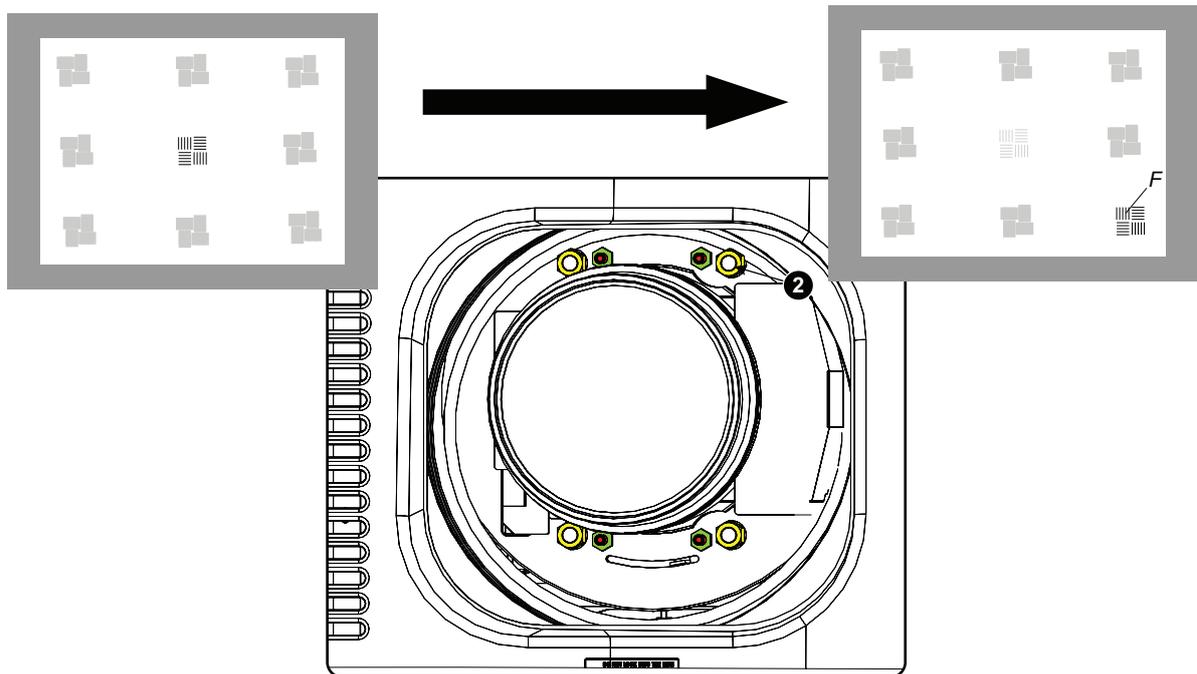


Image 3-36
Right bottom focusing

8. Sharpen top right corner of the screen by adjusting nut 3

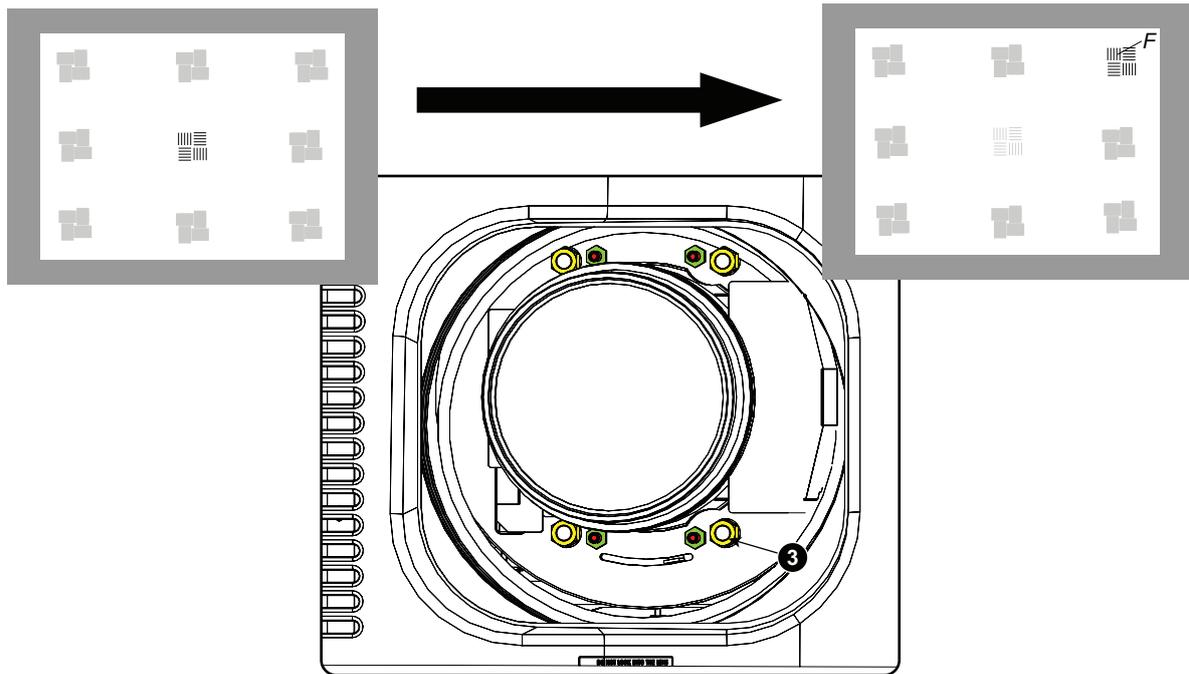


Image 3-37
Corner focusing

- Repeat from step 6 until the projected focus pattern is as sharp as possible in the center, left, right, top and bottom of the screen.

How to fix the Scheimpflug

Start the fixation as follows (steps must be followed strictly) :

- Turn in set screw A, B and C. Tighten lightly (by hand).
Tip: Any movement of the image will affect the Scheimpflug adjustment
- Fasten lock nuts a, b and c.
- Turn in set screw D lightly (by hand) allowing the image to move slightly (1/3 to 1/2 of a square).

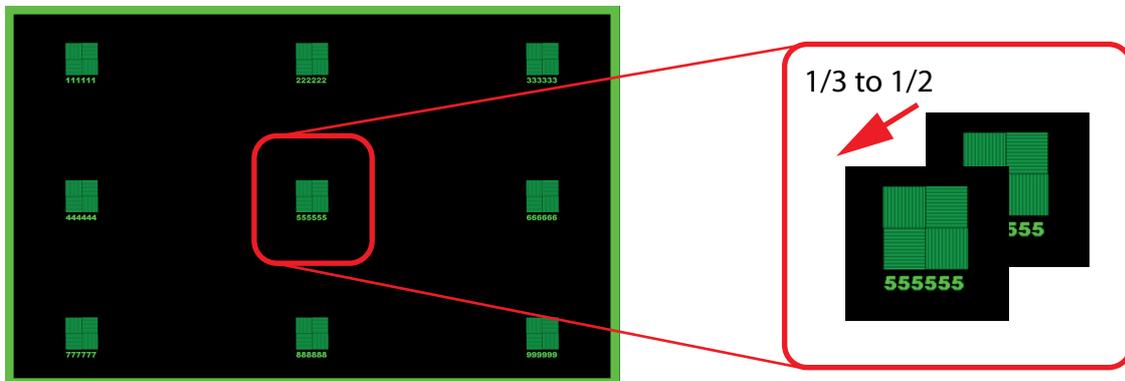


Image 3-38

- Fasten lock nut d.
- Tighten nut 4 until the offset of the image movement created in step 3 is canceled.
Tip: The amount of image movement in step 3 will determine how tight the nut in step 5 will need to be turned to return the image to its original position.

3.3 Connecting the projector with the power net



CAUTION: Use only the power cord provided with the projector.

How to connect with local power net

1. Ensure that the power switch stands in the '0' (OFF) position (1).

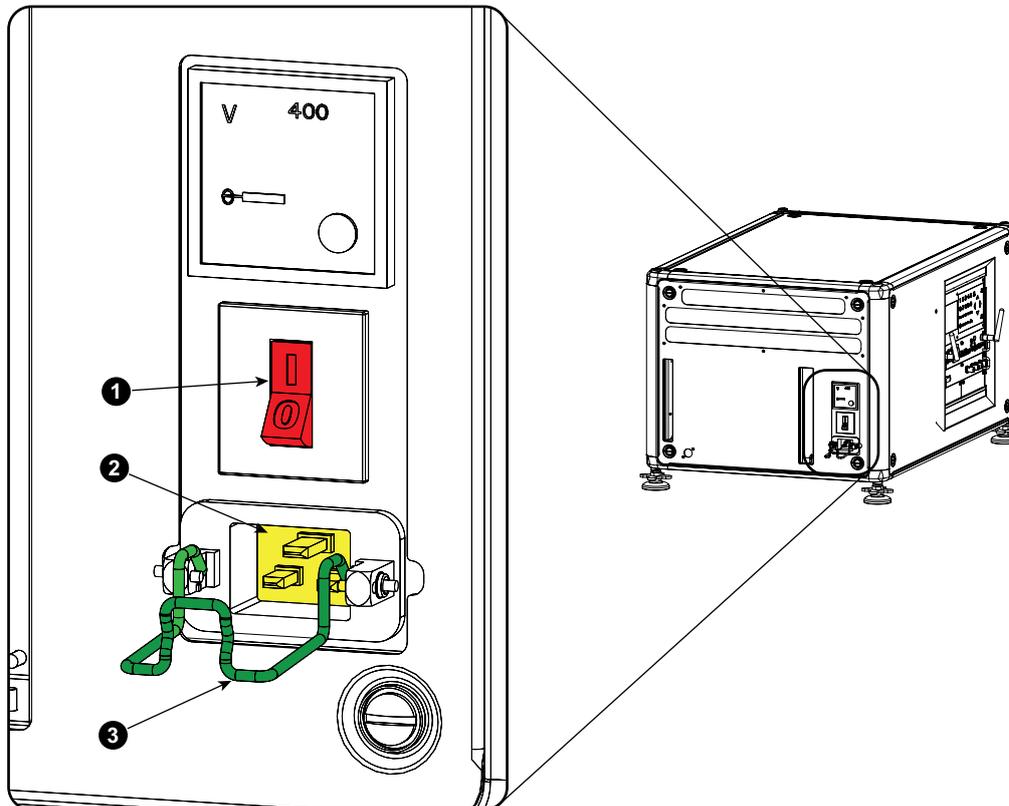


Image 3-39
Power input

2. Connect the female side of the power cord with the power input socket of the projector (2).
3. Secure the power plug by locking the plug holder clamp (3).
4. Connect the male side of the power cord to the local power net.

Caution: Ensure that the power net meets the power requirements of the projector.



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



CAUTION: Once the projector is switched to standby, the lamp cooling fans will continue to run for approximately five minutes to ensure that the projector and lamp have sufficiently cooled, at which point the fans will automatically decrease to standby. To avoid thermal stress that can lead to premature lamp failure, never unplug the power cord while the lamp cooling fans are running. Never unplug the power cord to power down the projector, first switch off the power switch and then unplug the power cord.

Fuses

The projector is protected with an automatic circuit breaker of 20 A which is built into the power switch.

The voltage meter is protected with a fuse (1A) which is located on the neutral bonding cable. If necessary to replace this fuse, consult a service technician.

3.4 Alignment of a table mounted projector

How to align

1. Place the projector in the desired location. Take into account the zoom range of the used lens and the size of the screen.
2. Project one of the internal hatch patterns on the screen.
3. Turn the adjustable feet in or out until the projected hatch pattern has a perfect rectangle shape and is leveled.

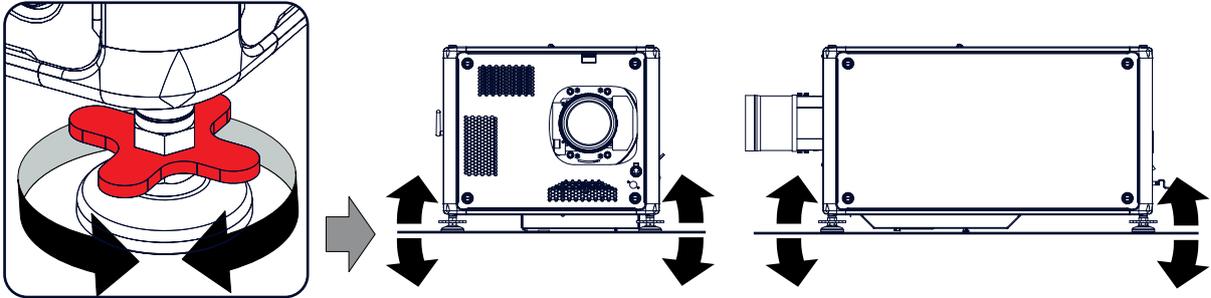


Image 3-40
Level alignment

When this is achieved, the projector is set horizontal and vertical at right angles to the screen.

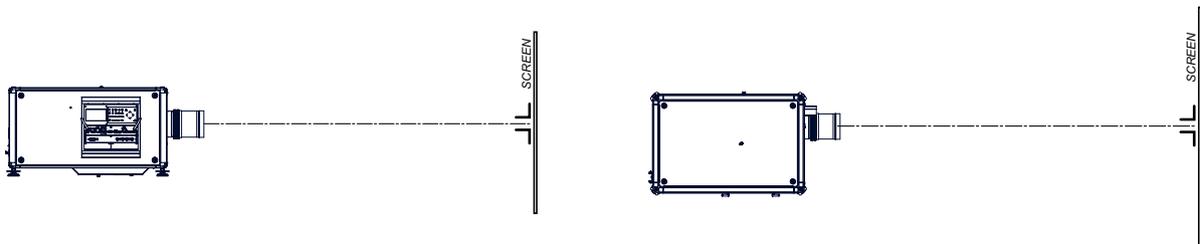


Image 3-41
Angle adjustment

3.5 Mounting the bottom carry handler

Necessary tools

Open wrench 17 mm

Necessary parts

4x bolt M10 x 16 mm

How to mount

1. Turn the projector upside down.
2. Turn out the 4 feet.

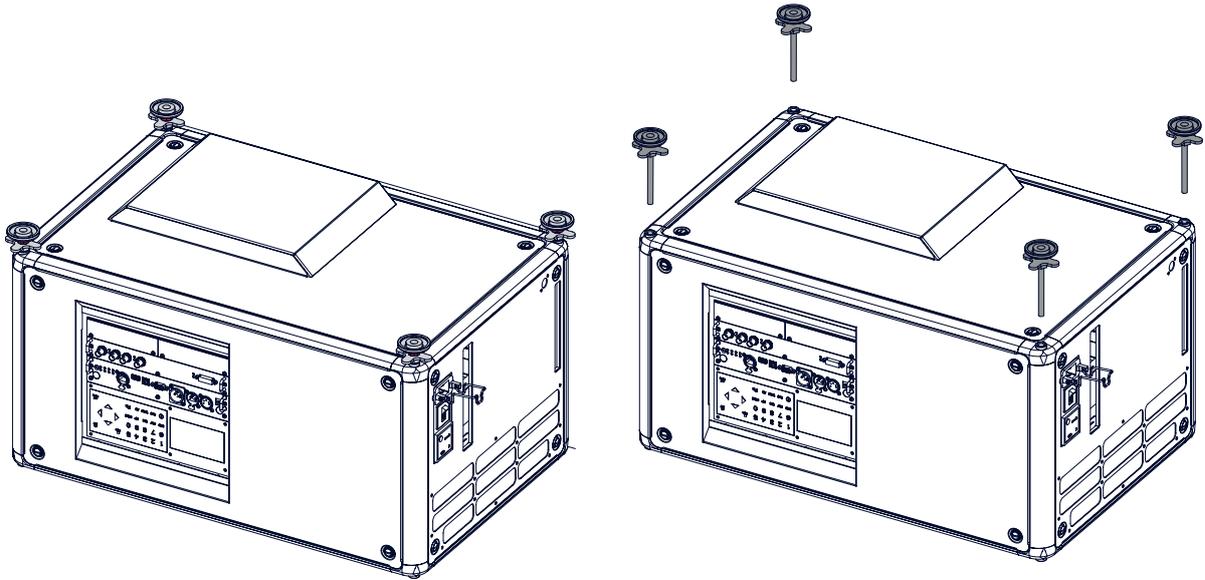


Image 3-42
Remove feet

3. Turn out the feet of the carry handle as far as possible.

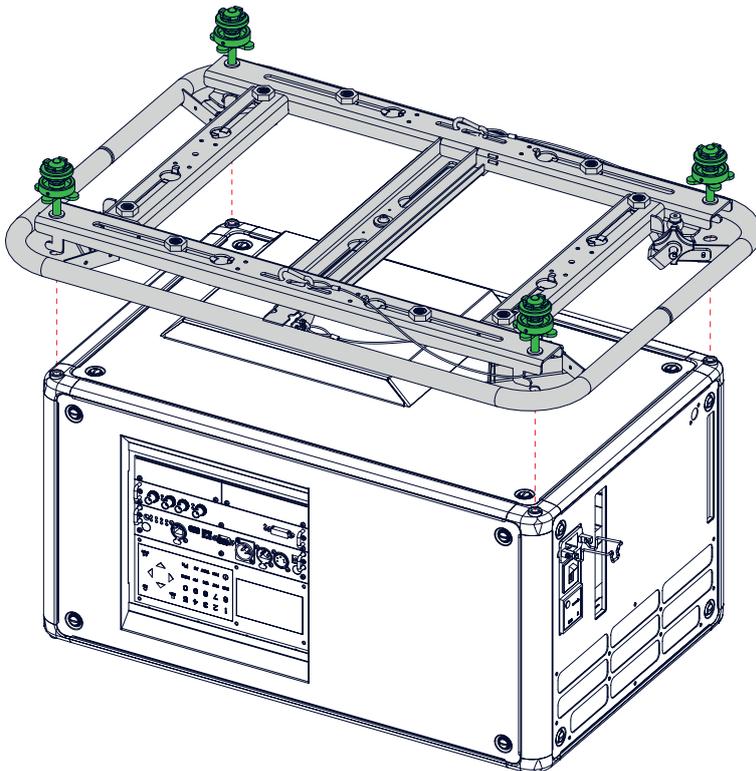


Image 3-43
Mount carry handle

4. Place the carry handle on the projector as illustrated. Adjustment knob to the back of the projector.
Make sure that the mounting holes matches the holes in the projector.
5. Insert a bolt in each corner and turn in these bolts.

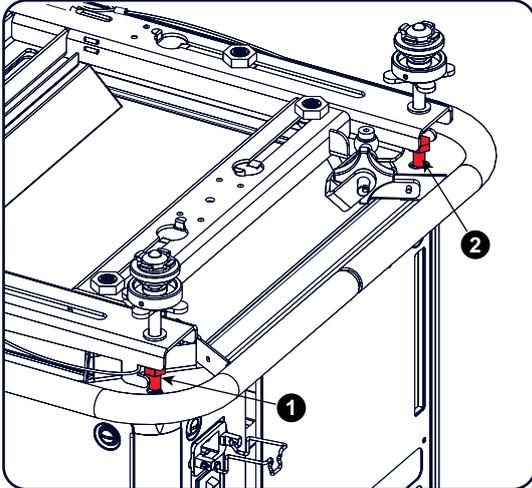


Image 3-44
Insert bolts

3.6 Mounting the top carry handle

Purpose

This carry handle can be used to transport the projector in an easy way.

Necessary tools

8 mm Allen wrench

Necessary parts

- 4x bolt M10 x 16
- 4x washer
- 1x carry handle

How to mount

1. Place the carry handle on top of the projector so that the fixation holes match the holes in the projector.

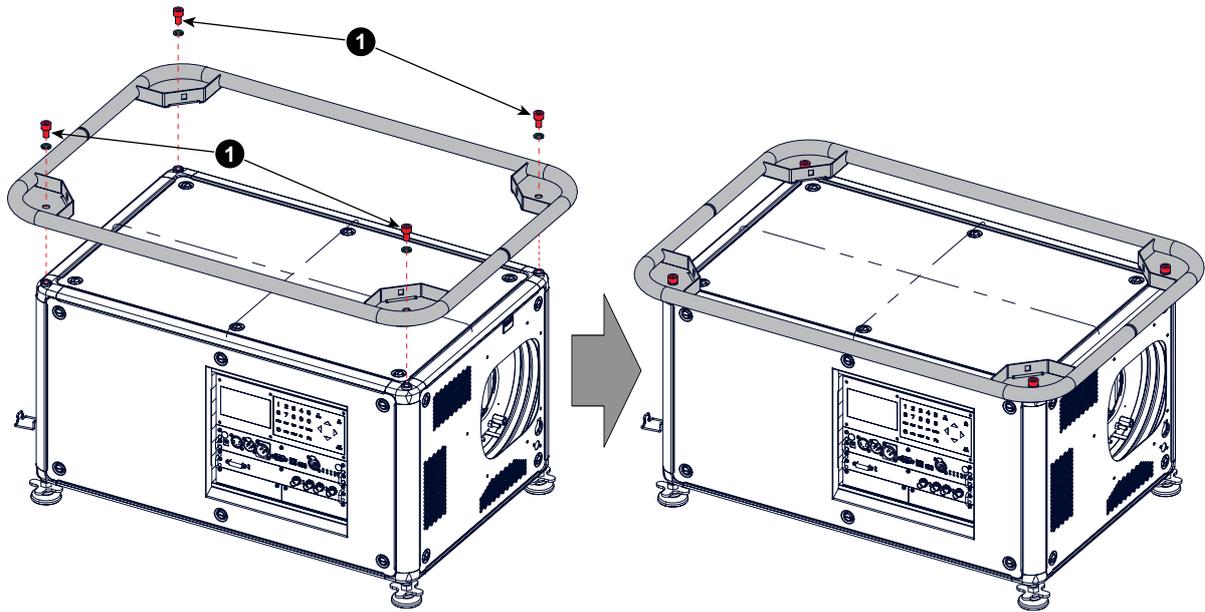


Image 3-45
top carry handle

2. Turn in the 4 fixation bolts (1). Insert a washer between the bolt and the carry handle.

3.7 Suspension of the projector with rigging clamps

Rigging points and rigging clamps

When a carrying handle is mounted at the bottom side of the projector, eight slots are available to mount rigging clamps. Four slots are longitudinally (1) oriented and four slots are transversely (2) oriented. Each slot contains a rigging point of which the position in the slot can be adjusted depending on the size of the truss installation. The rigging clamps can be attached to those rigging points, which allows an easy and fast physical setup of the projector in a hanging configuration.

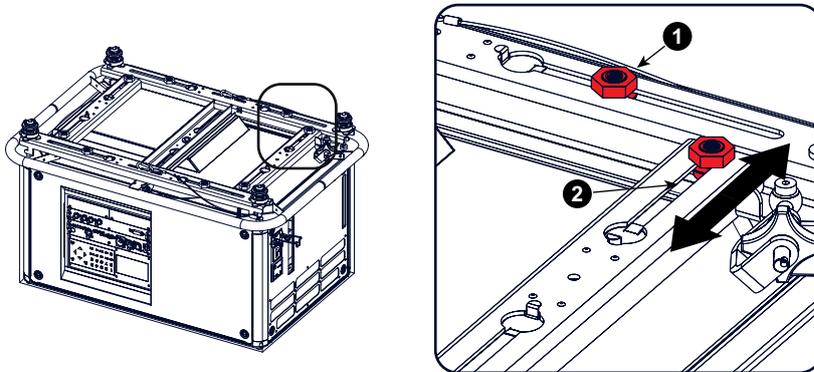


Image 3-46
Rigging points

Necessary tools

- Open end spanner 24 mm
- Open end spanner 17 mm

Necessary parts

4 rigging clamps

How to install and use the rigging clamps

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

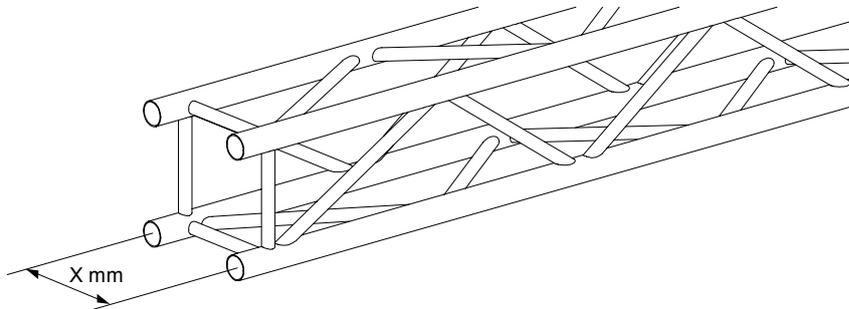


Image 3-47
Truss, example

2. Turn the projector upside down and slide the rigging points on there place in the slots, according the measured distance and secure this position. To release the nuts of the rigging points use a 24 mm open ended spanner. Ensure that the rigging points are symmetrically lined up, so that the projector will hang in balance.

Warning: Be careful while working with heavy loads.

Warning: Always secure the rigging points after adjustment.

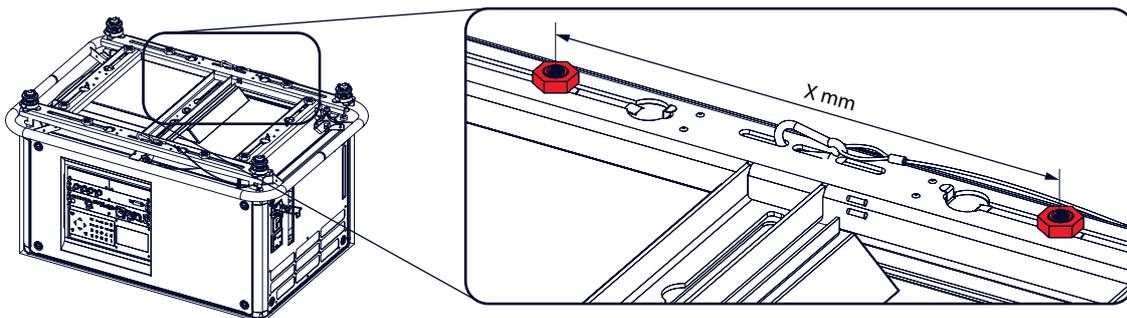


Image 3-48
Rigging points, distance

3. Physical installation

3. Turn in the rigging clamps (A) into the rigging points using a 17 mm open ended spanner. Place a washer between the clamp and the rigging point.

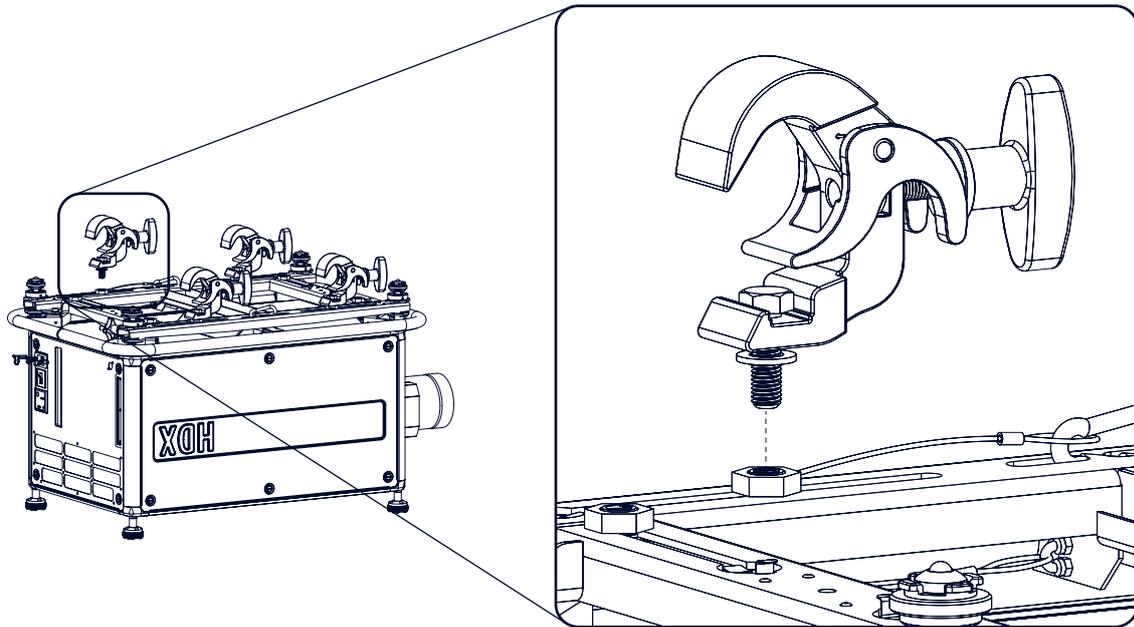


Image 3-49
Mount rigging clamps

Warning: Always use four (4) rigging points, equally spread, to suspend the projector.

4. Place all four rigging clamps in open position.
5. Place the projector (upside down) under the truss installation and lower the truss until the support bars of the truss are nearly by the rigging clamps mounted on the projector.

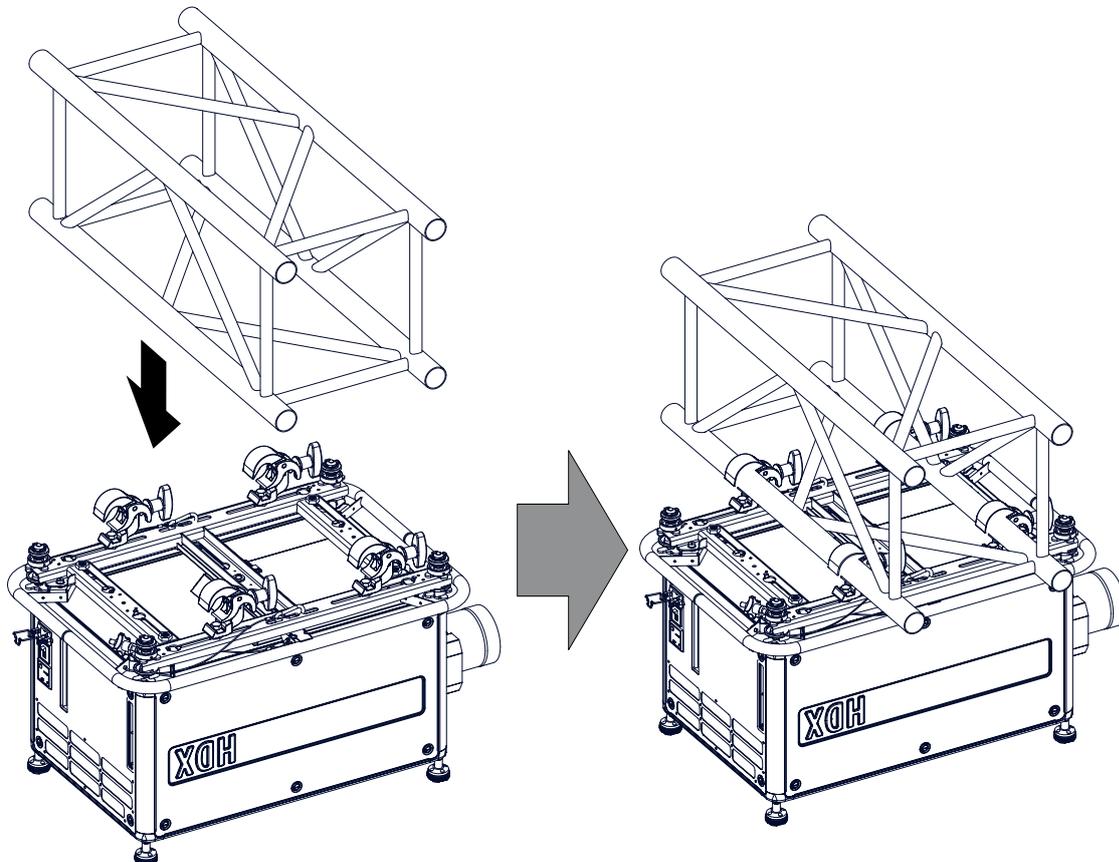


Image 3-50
Mount to truss

6. Lift up the projector and hook the four rigging clamps over the support bars of the truss.

7. Lock all four rigging clamps by turning the fixation handle clockwise.

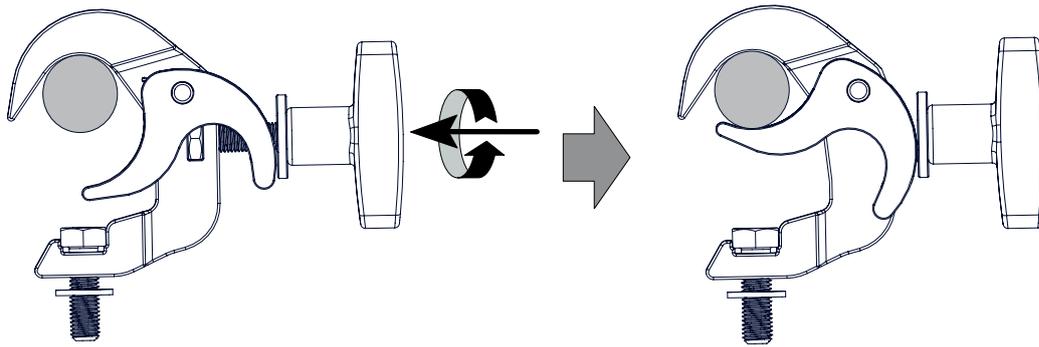


Image 3-51
Clamp fixation

8. Install the 2 safety cables, one on both sides of the carrying handle, and around the truss.
Mount the 2 safety cables around the carry handle (push the hook through the loop and then around the truss so that there is not too much play (maximum 20 cm). If necessary turn the cable a few times around the truss before clamping the safety hook around the cable.

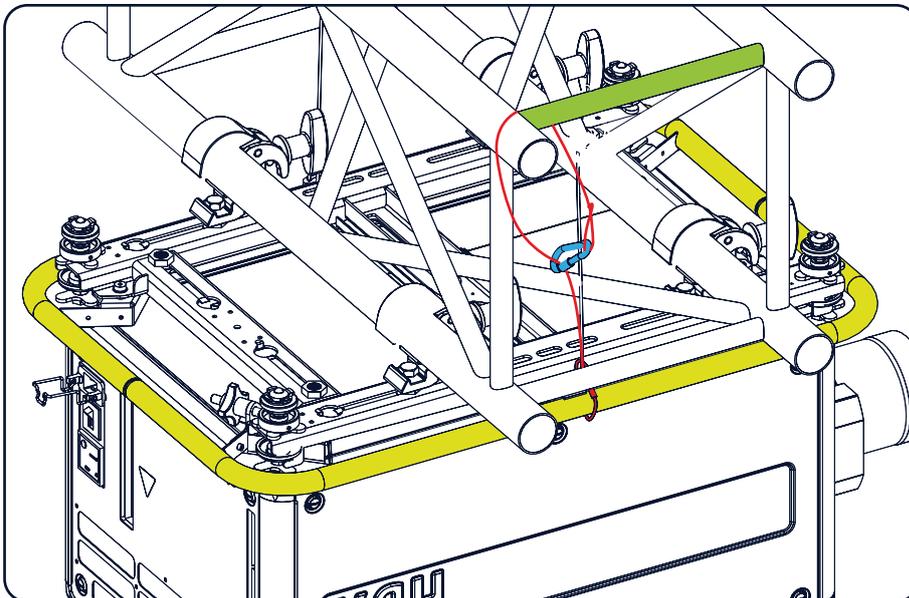


Image 3-52
Security cables

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



Mount the 2 safety cables in such a way that when something goes wrong, the projector cannot fall more than 20 cm. If necessary, turn the cables a few times around the truss to obtain this maximum distance.

3.8 Alignment of a ceiling mounted projector

Necessary tools

No tools.

Skew adjustment

1. Turn the adjustment knob on the carry handle until the projected hatch pattern is perfectly squared.

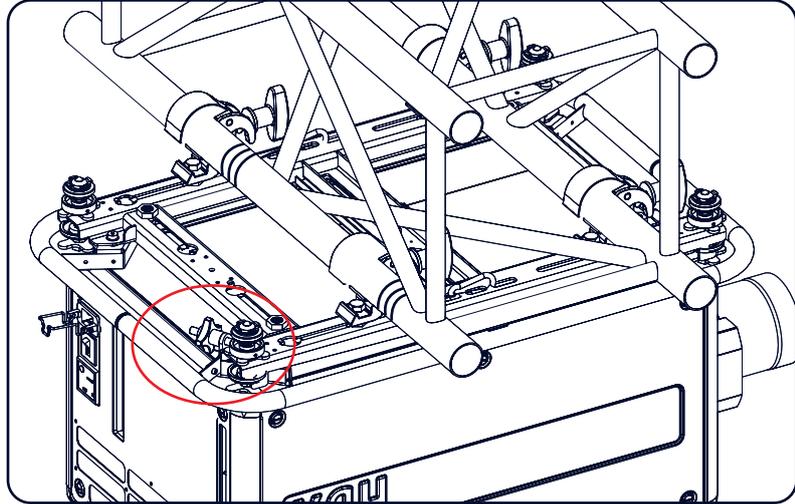
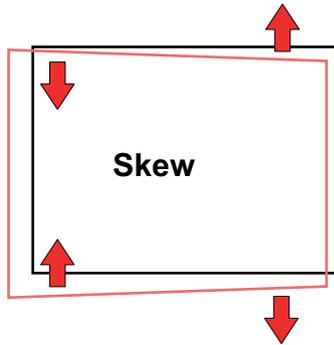


Image 3-53
Skew adjustment

4. INPUT & COMMUNICATION

Overview

- Introduction
- Input source connections
- Communication connections
- Utility-Accessory Outlet

4.1 Introduction

General

The Input & Communication side of the projector consists of a button module, a dual 3G/HDSI and DVI-I input as standard input module and 2 free input slots. The free input slots can be used for optional modules (f.e. 5-cable input).

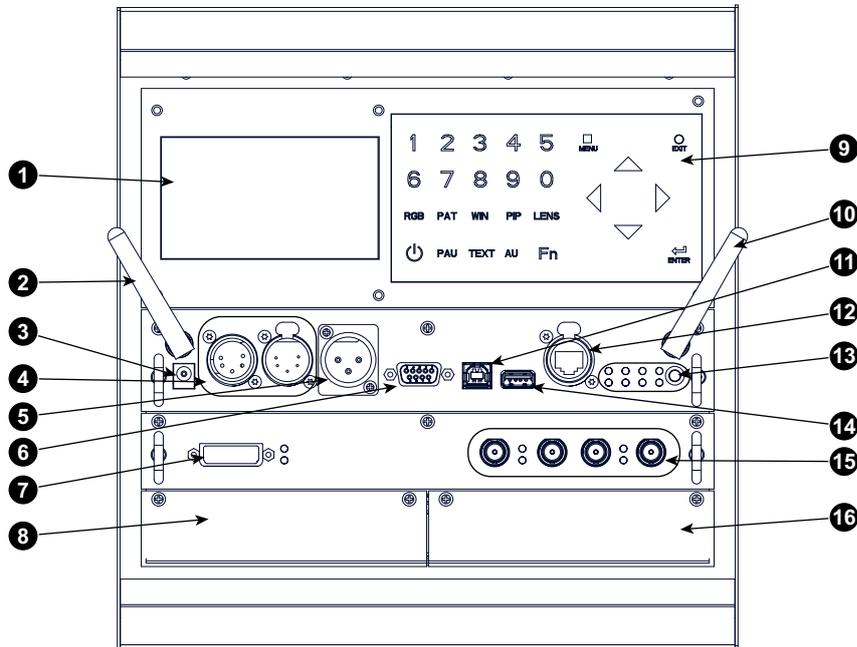


Image 4-1
Input & Communication connections

- 1 Display
- 2 Optional antenna for Wifi connection
- 3 12 V output as power supply to external equipment
- 4 DMX in - out
- 5 XLR input port for remote control
- 6 RS232/RS422 input port
- 7 Dual Link DVI-I HDCP input
- 8 Free input slot
- 9 Button module
- 10 Optional antenna for GSM
- 11 RS232/RS422 input port
- 12 Ethernet port
- 13 Status and indication LEDs
- 14 USB port
- 15 3G/Dual/HDSI input - output
- 16 Free input slot

4.2 Input source connections

DVI and 3G/HDSDI input

This input module is standard delivered with the HDX projector.



Image 4-2
Dual Link DVI and 3G/Dual HDSDI input

The yellow LED lights up when valid input sync is detected.

The green LED lights up when the input is selected.

DVI input specifications :

- RGB analog : up to 170 MHz.
- Single DVI : up to 165 MHz
- Dual link DVI : up to 200 MHz



DVI will not natively support 10-bit or 12-bit deep color. It is possible to enable 30-bit color over DVI using a specific pixel packing. We support the pixel-packing that is implemented by Silicon Image Sil7189 DVI receiver.

3G/Dual HDSDI input specifications :

- 3G follows the SMPTE 425M standard.
- HDSDI follows the SMPTE 292M standard.
- Dual link follows the SMPTE 372M standard
- SDI follows the 259M standard

5-cable input (optional)

Optional multi purpose input which can be inserted in the free slots.

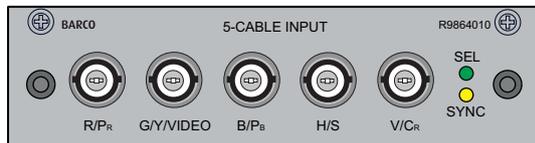


Image 4-3

Signal connectivity

| Input signal | R / P _R | G / Y / VIDEO | B / P _B | H / S | V / C _R |
|-----------------------|--------------------------|---------------|--------------------------|-------|--------------------|
| RGBHV | R | G | B | H | V |
| RGBS | R | G | B | S | — |
| RGsB | R | Gs | B | — | — |
| | | sync on green | | | |
| RGBCV | R | G | B | CV | - |
| Composite Video | — | VIDEO | — | — | — |
| Super Video | — | Y | — | — | C |
| | | Luma | | | Chroma |
| Component Video - S | P _R / (R - Y) | Y | P _B / (B - Y) | S | — |
| Component Video - SOY | P _R / (R - Y) | Ys | P _B / (B - Y) | — | — |
| YUV-CV | R-Y | Y | B-Y | CV | - |

5-cable input specifications :

4. Input & Communication

- Data and HD sources RGB and YUV [HS/VS, CS or SOG(Y)]:
 - Pixel clock maximum 200 MHz
 - 8 bit digital output
- Video sources CVBS, S-VIDEO, RGB and YUV [CS, CV or SOG(Y)]:
 - PAL B/D/I/G/H, PAL60, PAL M, PAL N, PAL Nc
 - NTSC M/J, NTSC 4.43
 - SECAM B/D/G/K/L
 - 525i, 625i, 525p, 625p
 - Macrovision copy protection robust
 - Standard images "video525" and "video625"
- Automatic detection of sync inputs but with manual override:
 - automatic modes : RGB, YUV, VIDEO
 - manual modes : RGB HS/VS - CS, RGB CV, RGB SOG, YUV HS/VS - CS, YUV CV, YUV SOY, CVBS, S-VIDEO
- Possible to disconnect 75 Ohm terminations on HS and VS (TTL sync level selection)
- Signal requirements:
 - Component Video (BNC)
 - R-Y : 0,7Vpp \pm 3dB 75 Ohm termination.
 - Ys : 1Vpp \pm 3dB (0,7V Luma +0,3V Sync) 75 Ohm termination.
 - B-Y : 0,7Vpp \pm 3dB 75 Ohm termination.
 - RG(s)B
 - R : 0,7Vpp \pm 3dB 75 Ohm termination.
 - G(s) : 1Vpp \pm 3dB (0,7Vpp G + 0,3Vpp Sync) 75 Ohm termination.
 - B : 0,7Vpp \pm 3dB 75 Ohm termination.
- Diagnostic LED's on front panel:
 - Green LED: Lights up in case input module is selected
 - Yellow LED: Lights up in case sync detected

4.3 Communication connections

Communication interface

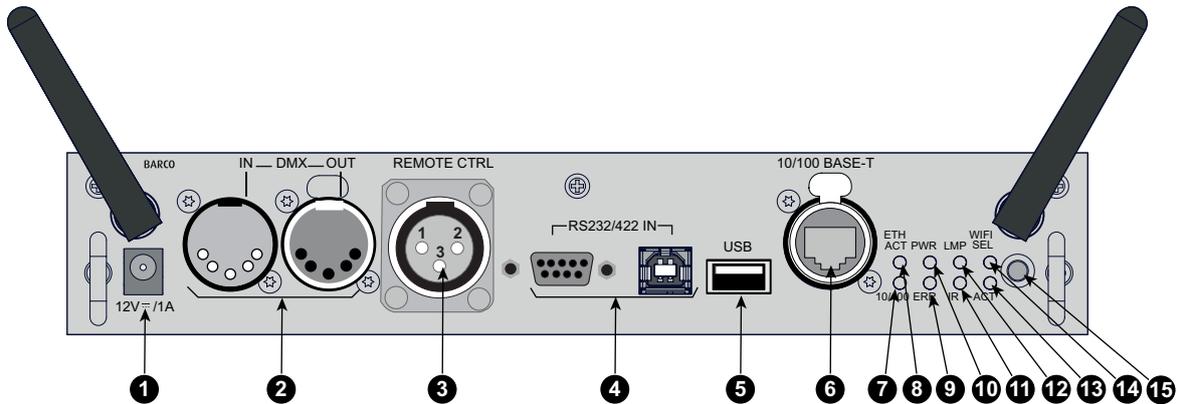


Image 4-4
Communication interface, indications

- 1 12V 1A output
- 2 DMX interface (input, output)
- 3 XLR input
- 4 RS232 input
- 5 USB port
- 6 Ethernet port
- 7 Ethernet type indication
- 8 Ethernet activity indication
- 9 Error indication
- 10 Power indication
- 11 IR indication
- 12 Lamp indication
- 13 ACT (activity) indication
- 14 Wifi select indication
- 15 IR receiver

12V output

12 V output, maximum 1A, available when projector is not in stand by.

DMX interface

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

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

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



DMX

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

Wired remote control (XLR)

If desired the remote control unit can be wired and plugged in into the male XLR port on the communication interface.

| XLR – Remote CTRL in | |
|----------------------|-------------------|
| Pin | Description |
| 1 | GND |
| 2 | RC5 in |
| 3 | XLR present sense |

RS232/RS422 input

The communication interface of the HDX projector supports RS232 and RS422 serial communication on two different types of input connectors. The left one a Sub-D connector, the right one an USBB connector acting as RS input when connected to an USB input of a PC.

You can use the RS232/RS422 input to connect a local PC to your HDX projector. By this way you can configure and control your HDX projector from your local PC.



Do not forget to set the projector's baud rate to match that of the computer.

Advantages of using RS232/RS422 serial communication:

- easy adjustment of the projector via PC (or MAC).
- allow storage of multiple projector configurations and set ups.
- wide range of control possibilities.
- address range from 0 to 255.
- sending data to the projector (update).
- copying data from the projector (backup).

| RS232/422 input (Sub-D) port | |
|------------------------------|--|
| Pin | Description |
| 1 | DCD : Data Carrier Detect |
| 2 | RXD- : Receive Data |
| 3 | TXD- : Transmitted Data |
| 4 | DTR : Data Terminal Ready [RS232] TXD+ : Transmitted Data [RS422] |
| 5 | GND : Ground |
| 6 | DSR : Data Set Ready [RS232] RXD+ : Received Data [RS422] |
| 7 | — (not connected) — |
| 8 | CTS : Clear To Send |
| 9 | RI : Ring Indicator |



RS232

An Electronic Industries Association (EIA) serial digital interface standard specifying the characteristics of the communication path between two devices using either D-SUB 9 pins or D-SUB 25 pins connectors. This standard is used for relatively short-range communications and does not specify balanced control lines. RS-232 is a serial control standard with a set number of conductors, data rate, word length and type of connector to be used. The standard specifies component connection standards with regard to computer interface. It is also called RS-232-C, which is the third version of the RS-232 standard, and is functionally identical to the CCITT V.24 standard. Logical '0' is > + 3V, Logical '1' is < - 3V. The range between -3V and +3V is the transition zone.

**RS422**

An EIA serial digital interface standard that specifies the electrical characteristics of balanced (differential) voltage, digital interface circuits. This standard is usable over longer distances than RS-232. This signal governs the asynchronous transmission of computer data at speeds of up to 920,000 bits per second. It is also used as the serial port standard for Macintosh computers. When the difference between the 2 lines is $< -0.2V$ that equals with a logical '0'. When the difference is $> +0.2V$ that equals to a logical '1'..

USB port

The communication interface is equipped with a master USB port, type "A" connector. This USB port will simplify the service procedures for software updates or for taking backup files from the projector without network connection. An USB-stick is plugged into the USB port and files can be transferred from or to the projector using the local or remote control unit. Note that the USB-stick has to be Linux FAT16 compatible.

Ethernet port

The projector can be connected to a LAN (local area network) using the Ethernet port on the communication interface. Once connected to the LAN, users are capable of accessing the projector from any location, inside or outside (if allowed) their company network using the control software: Projector Toolset. This toolset locates the projector on the network in case there is a DHCP server or the user can insert the correct IP-address of the projector to access the projector. Once accessed, it is possible to check and manipulate all the projector settings. Remote diagnostics, control and monitoring of the projector can then become a daily and very simple operation. The network connectivity permits to detect potential errors and consequently improve the time to servicing.



The connector used for the Ethernet ports (E) are of rugged Neutrik EtherCon RJ45 type, which is compatible with standard RJ45 cable connector. Straight (most common) as well as cross linked network cables can be used.

10/100 Base-T — RJ45 port

| Pin | Description |
|-----|-------------|
| 1 | TXD+ |
| 2 | TXD- |
| 3 | RXD+ |
| 4 | — |
| 5 | — |
| 6 | RXD- |
| 7 | — |
| 8 | — |

Status lights

| Function | Color | Description |
|----------|--------|---|
| ETH act | green | When connected with an Ethernet |
| 10/100 | orange | When a 100 MB network is detected |
| IR | red | IR received but not acknowledged |
| | green | IR received and acknowledged |
| WiFi sel | orange | When WiFi is selected |
| ACT | green | When WiFi is connected with an Ethernet |
| ERR | red | See "Status LEDs", page 70. |
| PWR | orange | See "Status LEDs", page 70. |
| LMP | orange | See "Status LEDs", page 70. |

4.4 Utility-Accessory Outlet

What can be done ?

An extra DMX controlled accessory can be added to projector.

Some examples of the use of this connector:

- Connect external accessories like the Catalyst Mirrorhead (Even if this example still needs a extra Power supply)
- Connect other DMX enabled devices like, color changers, shutters, dimmer wheels
- Connect a DMX Lens option
- Connect a DMX rigging frame level device
- Use for external relay

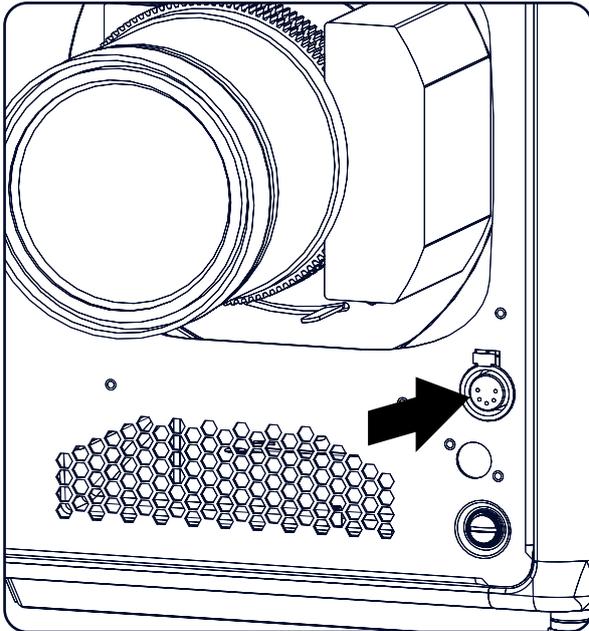


Image 4-5
Utility-accessory outlet

Pin configuration

- 1 GND
- 2 DMX Data -
- 3 DMX Data +
- 4 Power 9 - 24 Volt DC With Setting in menu 9 / 12 / 24 @ 25W

Note : do not overload ! Maximum 1A on 24V is allowed.

The connector is a duplicated output of the DMX signal entering the projector over the 5 Pin XLR

5. GETTING STARTED

Overview

- RCU & Local keypad
- Terminology overview
- Power on projector
- Switching to standby
- Power off projector
- Status LEDs
- Using the RCU
- Projector Address
- Source selection

5.1 RCU & Local keypad

How controlling the projector ?

The projector can be controlled by the local keypad or by the remote control unit.

Location of the local keypad ?

The local keypad is located on the input side of the projector.

Remote control functions.

This remote control includes a battery powered infrared (IR) transmitter that allows the user to control the projector remotely. This remote control is used for source selection, control, adaptation and set up.

Other functions of the remote control are :

- switching between stand by and operational mode.
- switching to "pause" (blanked picture, full power for immediate restarting)
- direct access to all connected sources.

5.2 Terminology overview

Overview

The following table gives an overview of the different functionality of the keys.

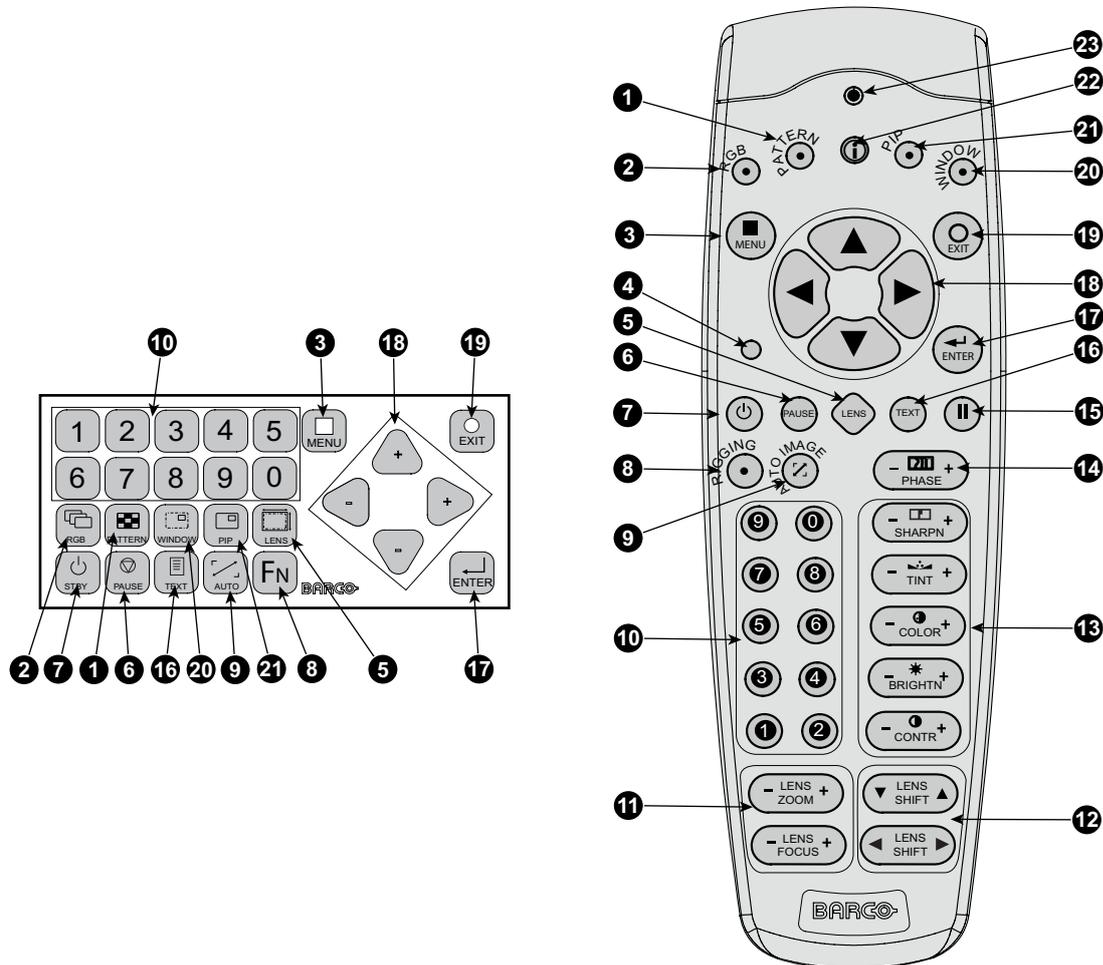


Image 5-1
Local keypad and RCU

| Ind. | Key name | Description |
|------|-----------------|---|
| 1 | Pattern key | Direct access key to the internal pattern selection menu. |
| 2 | RGB | Toggle key to enable and disable colors in the adjustment mode. Toggle between red, green, blue and full RGB. |
| 3 | MENU | Access key to the menu structure and key to quickly quit the adjustment menus. |
| 4 | Address key | (recessed key), to enter the address of the projector (between 0 and 9) in the remote control. Press the recessed address key with a pencil, followed by pressing one digit button between 0 and 9. |
| 5 | LENS | Direct access key to the lens adjustment menus. Toggling this key will change the projected pattern. |
| 6 | PAUSE | To stop projection for a short time, press 'PAUSE'. The image disappears but full power is retained for immediate restarting. Shutter is closed. |
| 7 | STBY | Standby function switch off the lamp and lamp electronics. The lamp cooling fans remain active for about 5 minutes. The speed of the other fans is reduced. |
| 8 | F _N | FN toggles the local display to preview an input |
| 9 | Auto | Auto alignment at first access. |
| 10 | Digit buttons | Direct input selection or numeric entries |
| 11 | Lens zoom/focus | Zoom and focus controls of the lens |
| 12 | Lens shift | Shift control of the lens, to shift the lens up/down or left/right |

| Ind. | Key name | Description |
|------|-------------------------|---|
| 13 | Picture controls | Use these buttons to obtain the desired picture level. |
| 14 | PHASE | Used to remove the horizontal instability of the image (usually for RGB source). It adjusts the phase of the pixel sampling clock relative to the incoming signal. |
| 15 | FREEZE | To freeze the actual projected image. |
| 16 | TEXT | Toggle key to activate or deactivate on screen text boxes while adjusting a setting. When adjusting one of the image controls, e.g. during a meeting, the normally displayed bar scale can be deactivated by pressing 'TEXT' key first. To re-display the bar scale on the screen, press 'TEXT' key again. When TEXT is 'off', no adjustment menu's will be displayed on the screen when entering the adjustment mode. All menus and adjustments remain active on the local LCD panel. |
| 17 | ENTER | Key to confirm an adjustment or selection in the adjustment mode. |
| 18 | Cursor keys | To make menu selections when in the adjustment mode |
| 19 | EXIT | Key to go one menu stage higher than the actual position when in the adjustment mode. |
| 20 | WINDOW | Selection of the active window "Main" or "PiP" |
| 21 | PIP | Direct access key for picture in picture selection. |
| 22 | Info | Displays help information when on a certain menu item of the software |
| 23 | RC Operating indication | Lights up when a button on the remote control is pressed. (This is a visual indicator to check the operation of the remote control) |

Table 5-1

5.3 Power on projector

How to power on.

1. Press the power switch at the back of the projector to switch on this projector.

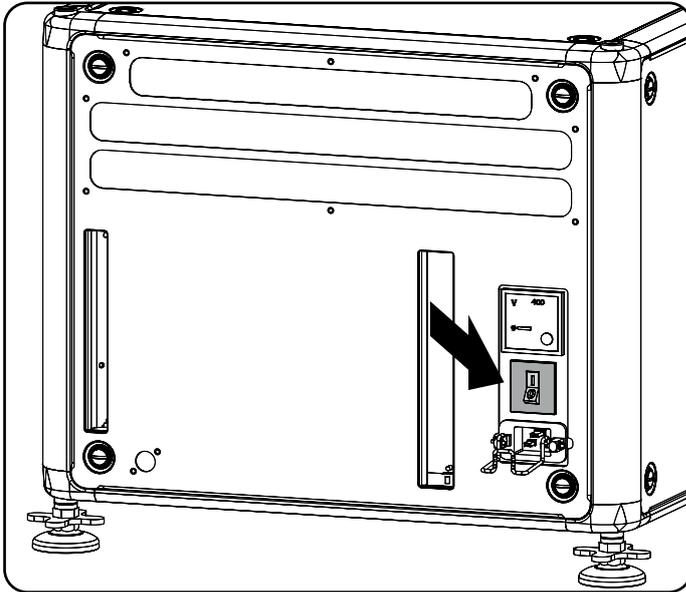


Image 5-2
Main switch

- When '0' is pressed, the projector is switched off.
- When '1' is pressed, the projector is switched on.

The projector starts up in standby. The menus are accessible via the local LCD panel.

The start up screen is displayed on the local LCD panel and when fully started up, it changes to the overview screen.



Image 5-3
Start up screen, Main

This screen indicates :

- the selected Main input
- the selected PIP input
- the IP address
- the Customer Id
- the Lamp status
- the Mains voltage
- the current ambient temperature
- the Text status (OSD)

To display an image, the standby key must be pressed once.



The current mains input voltage is indicated on the voltmeter just above the power switch.



The background image of the startup screen and info screens can be changed with Projector Toolset with an installed HDX plug-in.

Lamp overview

Once the projector is started, press **Lamp** to get an overview of the lamp parameters such as :



Image 5-4
Local screen, lamp

- number of Strikes
- Run time in hours
- Remaining run time in hours
- slide bar indication with percentage indication of the current run time, compared with the maximum life time of the lamp.

Software overview

Once the projector is started, press **About** to get an overview of the software versions such as :



Image 5-5
Local screen, about

- Package version
- Mgr software
- GUI software

Starting image projection via the standby key.

1. Press **Stand by** key once on the local keypad or on the remote control.

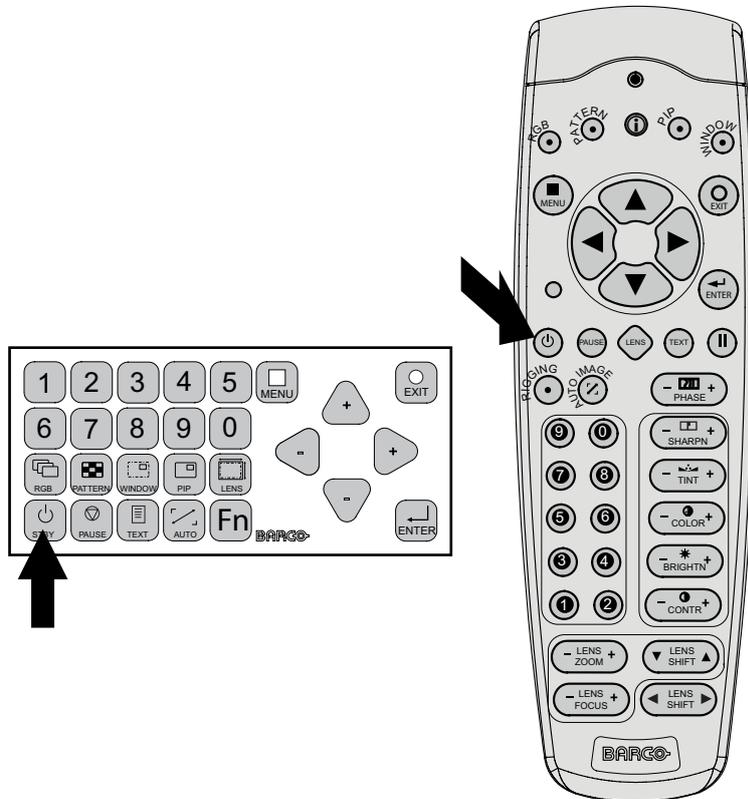


Image 5-6
Standby key indication

The projector starts up on the last saved source. The LMP LED on the communication interface lights up.

Some lamp and runtime warnings can be displayed when an image is displayed after a start up.

5.4 Switching to standby

How to switch to standby

1. Press and hold **Standby** for 3 seconds on the local keypad or the remote control. In the mean time the message *Keep on pressing...* is displayed. This message changes to *Saving data ...*

The projector goes to standby.



All custom settings are written to the internal backup device. A message 'Saving data ...' indicates this process. Never switch off the projector while this message is displayed.



When switching to standby, an after cooling process will start to cool down the projector. The after cool time depends on the temperature inside the projector and can vary from 30 second to 5 minutes.

5.5 Power off projector

How to power off

1. Press first **Standby**.
2. Let cool down the projector until the fan speed decrease. At least 5 minutes.
3. Switch off the projector with the power switch. '0' must be pressed.



CAUTION: Never switch off the projector while the message 'Saving data ... ' is displayed !

5.6 Status LEDs

Overview

| LED | Color status | Description |
|-----------------|---------------------------|--|
| Standby button | Red on | Projector is in standby |
| | Red toggles on/off | Projector startup failed, no lamp power supply |
| | Green toggles on/off | Projector starts up |
| | Green on | Projector is on |
| | White toggles on/off | From/To ECO standby |
| | Dimmed white | Projector powers up |
| Pause button | Red on | Shutter is closed |
| | Green on | Shutter is open |
| | Dimmed white | Shutter is closed, projector in standby |
| | Full white | Shutter is undefined (shutter not open and not closed) |
| | Full white toggles on/off | Shutter is closed during reset formatter |
| PWR (power LED) | Off | Projector powers up |
| | Red | Standby |
| | Orange | ECO standby |
| | Green | Projector is on |
| LMP (lamp LED) | Off | Lamp is off |
| | Red | No lamp inserted |
| | Orange | Lamp is on in ECO mode |
| | Green | Lamp is on in normal mode |
| | Green-Orange | Lamp is on in CLO mode |
| ERR (error LED) | Off | No error |
| | Red toggles on/off | Error |
| | Orange toggles on/off | Warning |
| IR | Red | IR signal received |
| | Green | IR signal acknowledged |

5.7 Using the RCU

Pointing to the reflective screen

1. Point the front of the RCU to the reflective screen surface.

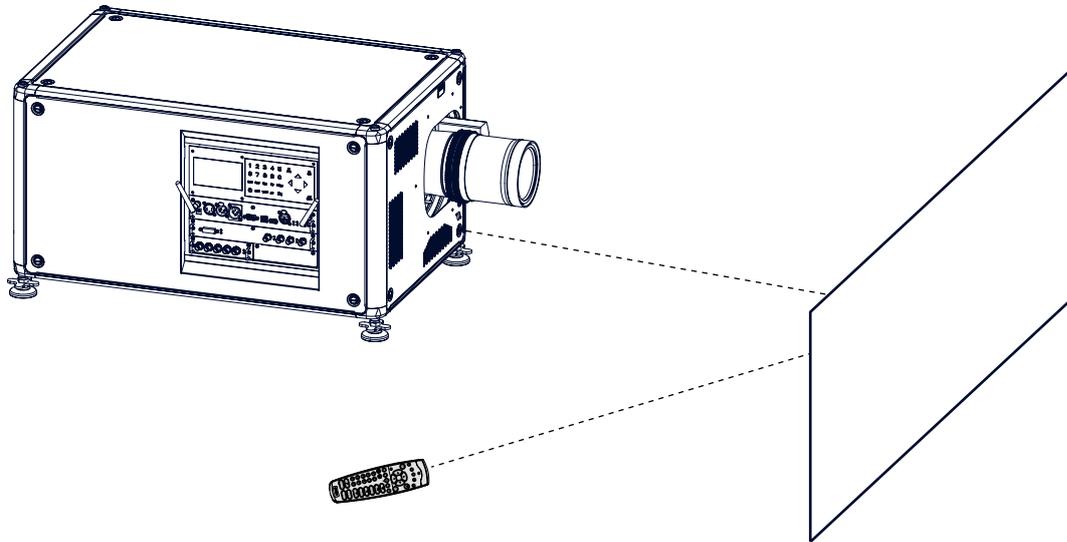


Image 5-7
IR control via reflective screen

Hardwired to the XLR input

1. Plug one end of the remote cable in the connector on the bottom of the RCU.
2. Plug the other end in the big connector on the communication interface of the projector, labelled **Remote CTRL**.

Pointing directly to the IR sensor

When using the wireless remote control, make sure you are within the effective operating distance (30m, 100ft in a straight line). The remote control unit will not function properly if strong light strikes the sensor window or if there are obstacles between the remote control unit and the projector IR sensor.

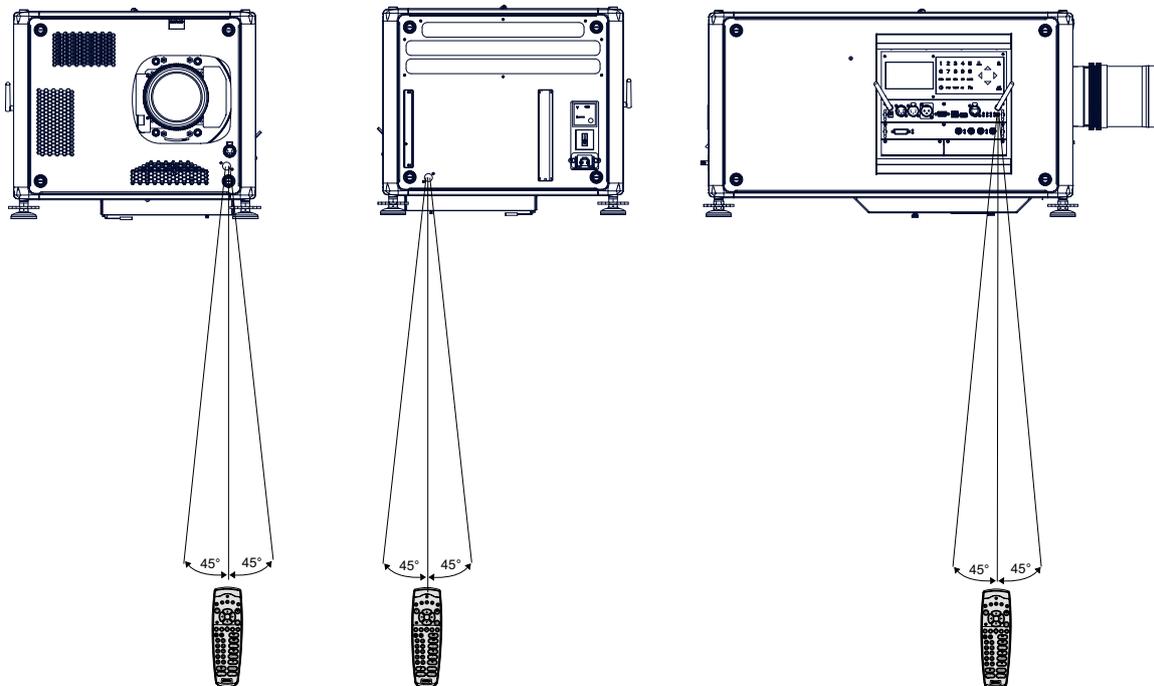


Image 5-8
RCU to one of the IR sensors

5.8 Projector Address

5.8.1 Displaying and Programming addresses into the RCU

Displaying the Projector Address on the Screen.

1. Press **Address** key (recessed key on the RCU) with a pencil.

The projector's address is displayed on the local LCD screen.



To continue using the RCU with that specific address, it is necessary to enter the same address with the digit buttons (address between 0 and 9) within 5 seconds after pushing the address key. For example : if the Address key displays projector address 3, then press "3" digit button on the RCU to set the RCU's address to match the projector's address. Do not press 03. This will address the remote control to '0' and control all projectors in the room. If the address is not entered within 5 seconds, the RCU returns to its default address (zero address) and controls all projectors in the room.

How to Program an Address into the RCU?

1. Press the **Address** key (recessed key on the RCU) with a pencil.
2. Enter the address with the digit buttons within 5 seconds after pushing the address key.

Note: That address can be any digit between 0 and 9.



The LED on the remote control must lit up while pressing a digit key. Otherwise the address is not entered in the remote control.

5.8.2 Controlling the projector



Projector address

Address installed in the projector to be individually controlled.



Common address

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

Why a projector address ?

As more than one projector can be installed in a room, each projector should be separately addressable with an RCU or computer. Therefore each projector has its own address.

Set up an individual Projector Address.

The set up of a projector address can be done via the software. See chapter 'Projector Control', 'Projector address'.

Projector controlling.

Every projector requires an individual address between 0 and 255 which can be set in the Service mode.

When the address is set, the projector can be controlled now:

- RCU for addresses between 0 and 9.
- computer, e.g. IBM PC (or compatible), Apple MAC, etc. for addresses between 0 and 255.

Common Address

Every projector has a common address '0' or '1'. The choice between '0' and '1' can be selected in *Projector Control* → *Projector address* → *Common address*.

5.9 Source selection

Source selection when no picture in picture is active

Use the digit keys on the remote control or local keypad to activate the desired source.

Source selection when picture in picture is active

Use the **Window** button on the remote control or the local keypad to select the main window or the picture in picture (PiP) window.

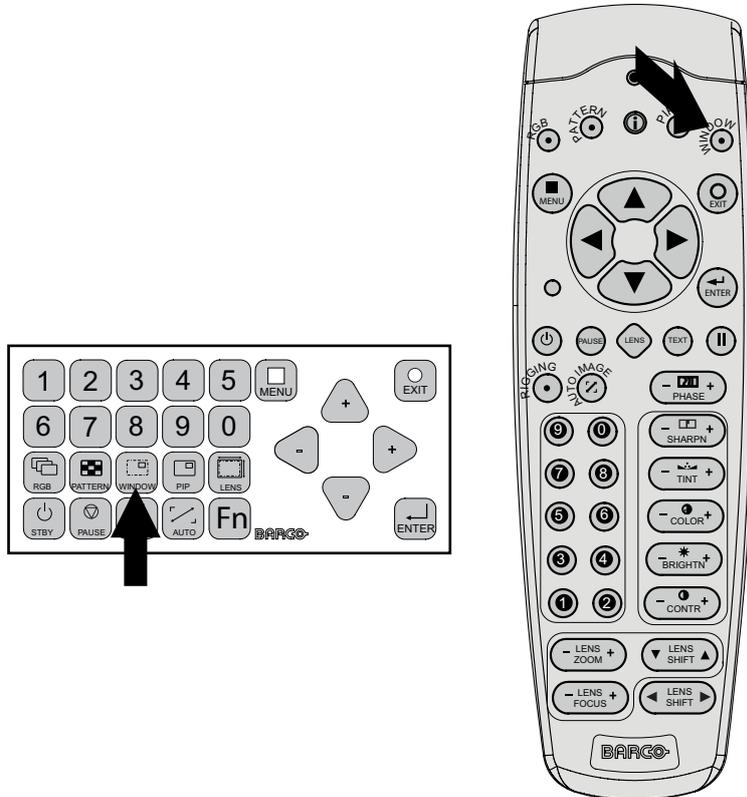


Image 5-9
Window selection button

The outline of the selected window gets a colored rectangle to indicate the selection. For the main window, the color is blue. For the picture in picture window, the color is orange.

Once the desired window is activated (main window or picture in picture window) all keys on the remote control or local keypad can now control that selected window.

To select the source for the picture in picture window, press Window button until PiP window is activated and then select the desired source with the digit keys.

To select the source for the main window, press Window button until the main window is activated and then select the desired source with the digit keys.

6. QUICK SET UP ADJUSTMENT

Overview

- Text boxes ON or OFF
- Quick Lens Adjustment via LENS key
- Direct Lens Adjustment (RCU)
- Quick picture in picture
- Quick language selection

6.1 Text boxes ON or OFF

Text toggle function

The on-screen text boxes can be switched OFF so that an adjustment during the operation of the projector is not visible on the screen. The adjustment indication remains visible on the local LCD screen.

To toggle Text ON or OFF, press the **TEXT** key on the remote control or local keypad.

6.2 Quick Lens Adjustment via LENS key

Quick zoom/focus adjustment

1. Press the **LENS** key on the remote control or local keypad to open the *Zoom/Focus Adjustment* menu.

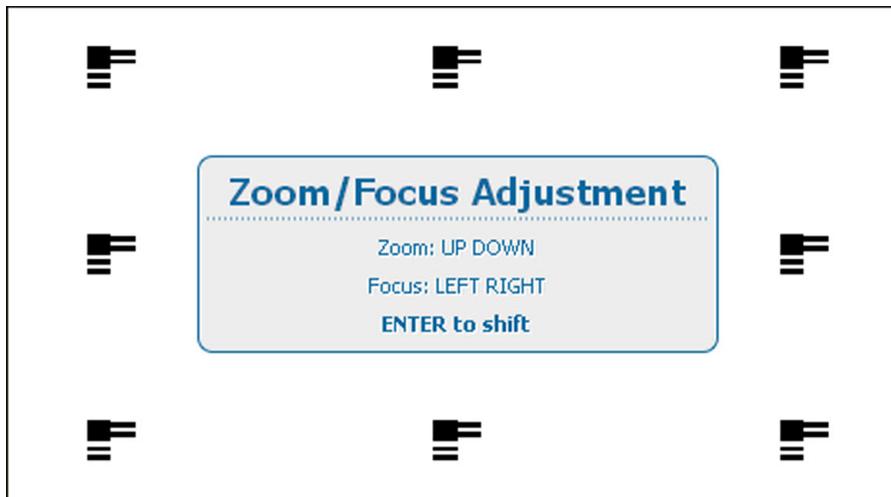


Image 6-1
Zoom/Focus adjustment

2. Use the ▲ or ▼ key to zoom and ◀ or ▶ key to focus the image.
3. When finished, press **EXIT** key to return or **ENTER** to continue to the shift adjustment.



Press the **LENS** key to switch to another pattern. Different patterns are available.

Quick shift adjustment

1. Press the **LENS** key on the remote control or local keypad to open the *Zoom/Focus Adjustment* menu.

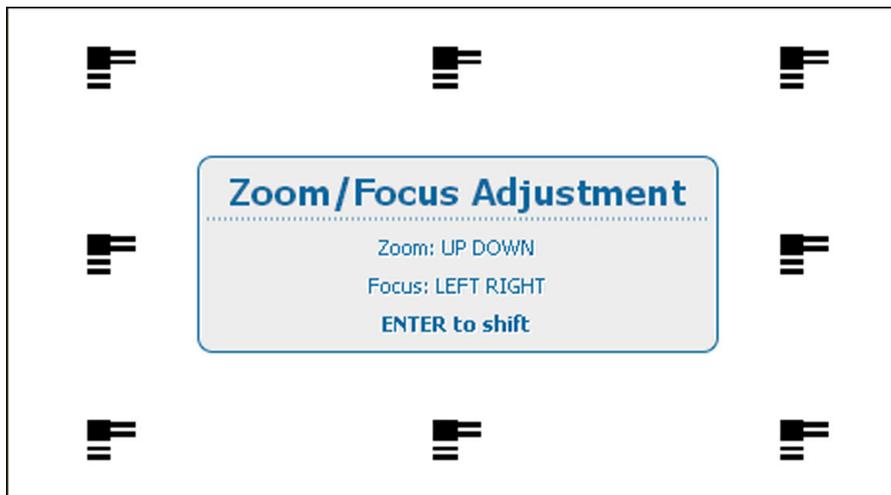


Image 6-2
Zoom/Focus adjustment

2. Press **ENTER** to go to the *Shift* menu.

6. Quick set up adjustment

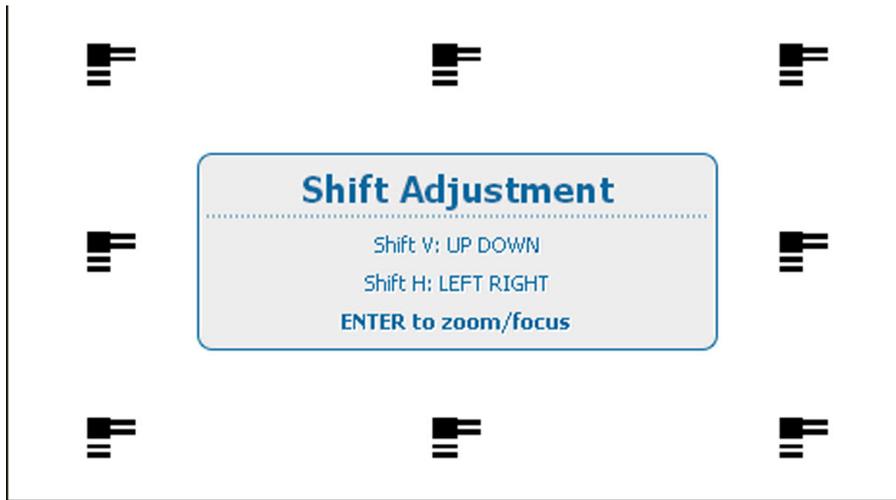


Image 6-3
Shift adjustment

3. Use the ▲ or ▼ key to shift the lens in vertical direction.
Use the ◀ or ▶ key to shift the lens in horizontal direction.
Press **ENTER** to switch to zoom/focus adjustment.

6.3 Direct Lens Adjustment (RCU)

Lens adjustment buttons on the Remote Control

On the Remote Control four buttons with double action are provided, allowing direct alignment for lens ZOOM, FOCUS, HORIZONTAL SHIFT and VERTICAL SHIFT.

1. Press **LENS ZOOM** button [-] or [+] (A) for correct image size on the screen.

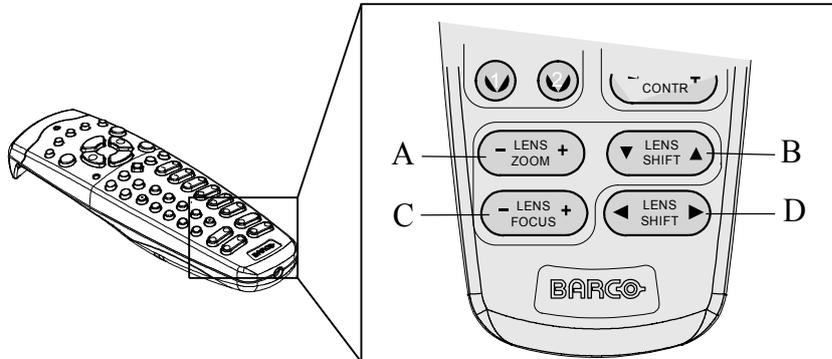


Image 6-4
Direct lens adjustment keys

- A Zoom
- B Vertical shift
- C Focus
- D Horizontal shift

2. Press **LENS FOCUS** button [-] or [+] (C) for an overall focus of the image.
3. Press **▲ LENS SHIFT ▼** button for correct vertical position of the image on the screen.
4. Press **◀ LENS SHIFT ▶** button for correct horizontal position of the image on the screen.

6.4 Quick picture in picture

Quick On - Off

Press on the **PIP** key on the remote control or the local keypad to activate the Load layout window.

Use the **▲ ▼** key to scroll to the desired layout and press **ENTER** to activate.



Select *Main full screen* to switch off PIP.



Image 6-5
Load layout file list

6.5 Quick language selection

Language selection

1. Press **Menu** to activate the menus and select *Projector Control* → *Change Language*.
2. Press **ENTER** to open the language selection menu.
3. Select the desired language with the **▲ ▼** key and press **ENTER** to activate.

The current active language is indicated with a selected radio button

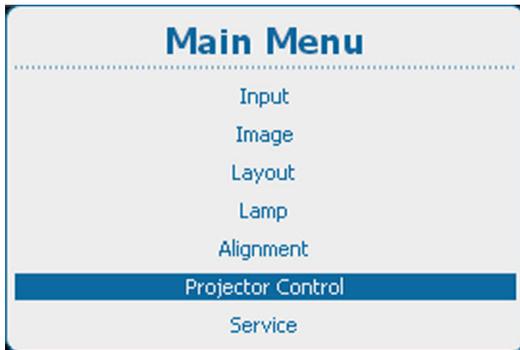


Image 6-6
Main menu

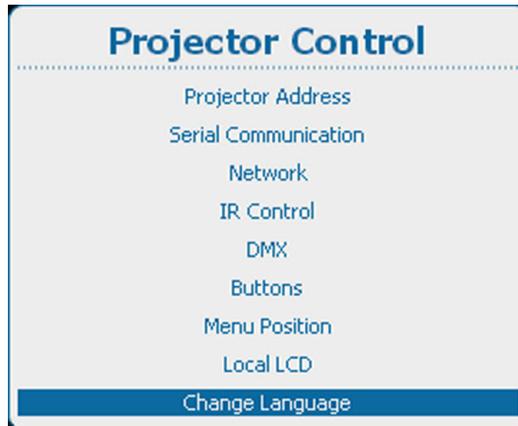


Image 6-7
Projector Control



Image 6-8
Change language

7. START UP OF THE ADJUSTMENT MODE

Overview

- About the adjustment mode
- About the use of the remote control and the local keypad
- Start up the adjustment mode
- Navigation and adjustments
- Menu memory
- Shortcut keys to the menus
- Test patterns in adjustment mode
- Help information in adjustment mode

7.1 About the adjustment mode

Overview

As the adjustment mode is the central place to control and align the projector, the following functions can be done:

- Input setup: different Input settings can be adjusted such as specific input slot settings, locking, native resolution and no signal settings.
- Image adjustment: these adjustments are organized per image source and contain the aspect ratio, timings and image settings.
- Layout adjustment: set up of the main window and the picture in picture window.
- Lamp: manage the lamp mode, the lamp use, lamp type and history
- Alignment: groups all controls necessary during the setup of the projector onto a screen.
- Projector control: contains the accessibility settings of the projector, such as address and communication setup.
- Service: contains information about how the projector is performing. This information will be useful when calling for a service intervention.

7.2 About the use of the remote control and the local keypad

Overview

All navigations and adjustments can be done either with the remote control or with the local keypad.

Almost all the keys on the remote control have an equivalent on the local keypad.

Exceptions:

- Direct adjustment keys such as Contrast, Brightness, Saturation, Phase, etc.

7.3 Start up the adjustment mode

Start up tools

To start up the adjustment mode, use the remote control or the local keypad.

How to start up?

1. Press **Menu** on the remote control (RCU) or on the local keypad to start up the *Adjustment* mode.

The main menu of the adjustment mode opens.

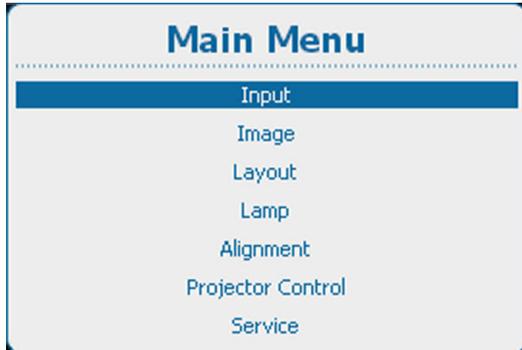


Image 7-1
Main menu

7.4 Navigation and adjustments

How to navigate in the menu structure?

Once in the menu structure, use the ▲ or ▼ key on the remote control or on the local keypad to scroll through the items in the displayed menu. The selected item will get a background color. To activate a selected submenu or function, press **ENTER**.

When on a submenu, to return one step to the parent menu, press **EXIT**.

To escape the menu structure when on a menu, press **MENU**.

How to make an adjustment?

With the remote control or the local keypad navigate through the menu structure until the desired item is selected. Press the ▲ or ▼ key until the desired item is reached. Press **EXIT** to finalize the adjustment.

With the local keypad or remote control, press the ▲ or ▼ key until the desired value (setup) is reached. Press **EXIT** to finalize the adjustment.

Direct adjustment within the menu:

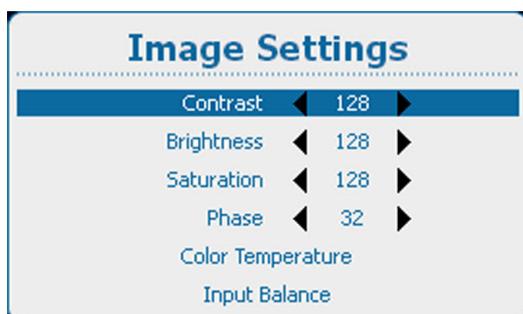


Image 7-2

Use the ◀ or ▶ key to directly adjust the current value.

or,

Via bar scale adjustment :

Once an item is selected, press **ENTER** to open the bar scale menu.

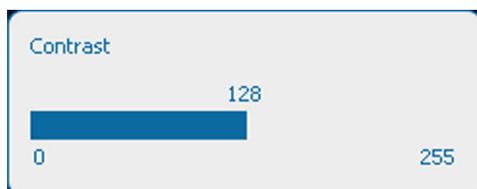


Image 7-3
Contrast adjustment

Use the ◀ or ▶ key to adjust the current value.

The bar scale will move accordingly.

Press **EXIT** to finalize the adjustment.

or,

When the bar scale is displayed, via direct input. Press **ENTER** to activate the input field.

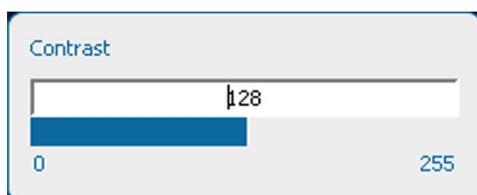


Image 7-4
Direct contrast adjustment

Enter the desired value with the digit keys. Press **ENTER** to accept.

Press **EXIT** to finalize the adjustment.

7.5 Menu memory

Overview

Each menu with sub menus, remembers its last selected sub item even when leaving the menu structure and that as long as the projector is running. When restarting the projector from stand-by, the menu memory is reset.

After re-opening the main menu and selecting an item, the previous selected sub item of that selected item is highlighted and can be opened just by pressing **ENTER**.

7.6 Shortcut keys to the menus

About a shortcut key

The digit keys 5 to 9 can be customer programmed to directly open a pre-stored menu. That menu can be any independent menu out of the list of menus. A menu which is built up by the content of a previous menu cannot be stored behind a shortcut.

How to use a shortcut key

While in the operational mode, no menu selected, just press on the desired digit key to open the menu behind that shortcut key.

How to create a shortcut key

Scroll to the desired menu. Press the digit key behind which the menu must be stored for 5 seconds. When the creation is successfully, a confirmation message appears on the screen. E.g. :

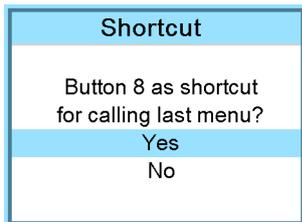


Image 7-5

Select **Yes** to confirm the creation.



To erase the shortcut, navigate to *Projector Control* → *Buttons*.

7.7 Test patterns in adjustment mode

Overview

When the adjustment mode is started, a test pattern can be called at any moment just by pressing the **Pattern** key on the RCU or the local key path. Press as many times on the **Pattern** key as necessary to display the desired test pattern. The test pattern remains on the screen as long as the adjustment mode is selected, even when selecting other menus. When leaving the adjustment mode, the selected test pattern is cleared and the normal image is displayed again.

7.8 Help information in adjustment mode

Overview

For many items in the adjustment mode, help information is available. When on an item, just click on the info button of your remote control to display information about the selected item.

When no information is available for the selected item, the message *No help available for this item* is displayed.

To return to the adjustment mode, press **EXIT**.

8. INPUT

Overview

- Input menu overview
- Slot Module Type
- Input locking
- Native resolution
- No Signal

8.1 Input menu overview

Overview table

| Level 1 | Level 2 | Level 3 | Level 4 |
|---------|----------------------------|---|--|
| Input | Slot Module Type | DVI/RGB | DVI DVI Dual link RGB HS-VS YUV HS-VS |
| | | SDI (SD/HD/3G/Dual) | Input 1 Priority Input 2 Priority Input 1 Input 2 DUAL SDI |
| | Input Locking | Input on Main Window Input on Pip Window Input 1 Input 2 Input 3 Input 4 Free Run Free Run Options | |
| | Native Resolution [On/Off] | | |
| | No Signal | Color [black/blue] Logo [On/Off] Shutdown [Off/On] Shutdown time Auto dimming [On/Off] | |

8.2 Slot Module Type

Overview

- About Input Setup
- Input configuration
- DVI - RGB input
- SDI input
- 5 cable input

8.2.1 About Input Setup

Overview

Each input module must be configured before these module can be used. This configuration is necessary so that the projector knows which type of signal is connected to its input.

The projector has 4 input slots. Slot 1 and 2 is filled up by default with a DVI and Dual SDI input. Slot 3 and 4 can be filled up with optional input modules. Identical modules are allowed.

8.2.2 Input configuration

How to change?

1. Press **Menu** to activate the menus and select *Input* → *Slot module type*.

2. Press **ENTER**.

The slot overview window is displayed with the actual situation filled out.

3. Use the **▲** or **▼** key to select a slot.

Press **ENTER** to open the selection menu which will be different from input type to input type.

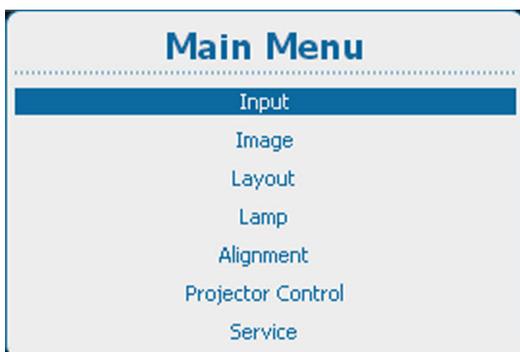


Image 8-1
Main window

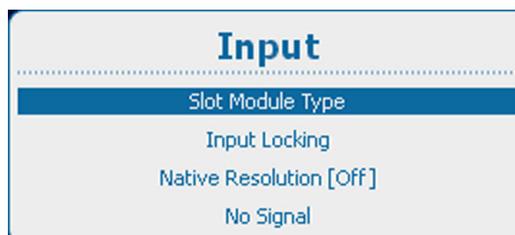


Image 8-2
Input window

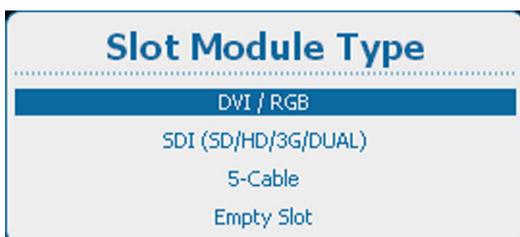


Image 8-3
Slot module type

8.2.3 DVI - RGB input

How to select

Select DVI / RGB and press **ENTER** to open the selections

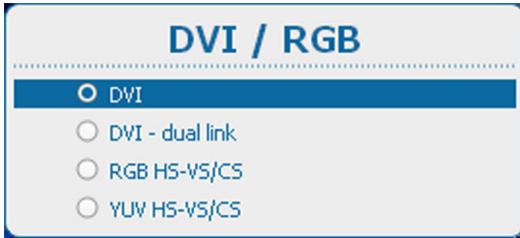


Image 8-4
DVI selection

The following selections are possible:

- DVI
- DVI - dual link
- RGB HS-VS/CS
- YUV HS-VS/CS



DVI will not natively support 10-bit or 12-bit deep color. It is possible to enable 30-bit color over DVI using a specific pixel packing. We support the pixel-packing that is implemented by Silicon Image Sil7189 DVI receiver.

8.2.4 SDI input

About SDI input

The Dual SD/HD/3G-SDI Input can accept standard-definition (SD), high-definition (HD) and 3 Gigabit-definition serial-digital-interface (SDI) signals .

How to select

Select SDI (SD / HD / 3G / Dual) and press **ENTER** to open the selections

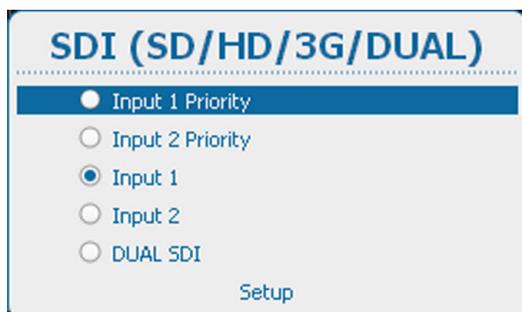


Image 8-5
SDI, input type selection

The following selections are possible:

- Input 1 Priority
- Input 2 Priority
- Input 1
- Input 2
- Dual SDI

SDI setup

To set up the SDI input, select *Setup* and press **ENTER**.

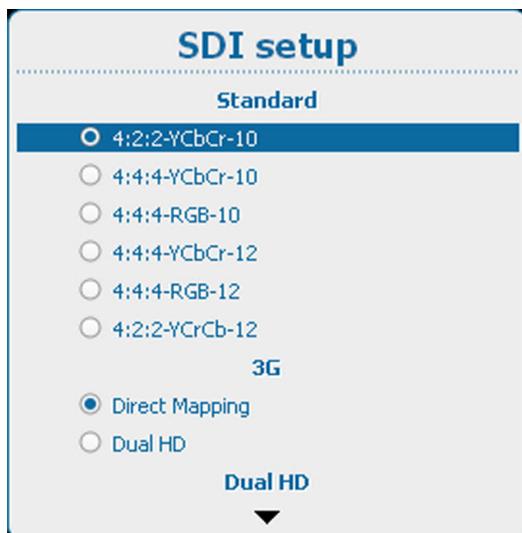


Image 8-6
SDI set up

First, select the standard. Use the **▲** or **▼** key to select and press **ENTER** to accept.

Standard :

- 4:2:2 - YCbCr-10
- 4:4:4 - YCbCr-10
- 4:4:4 - RGB-10
- 4:4:4 - YCbCr-12
- 4:4:4 - RGB-12
- 4:2:2 - YCrCb-12

Then, select the 3G setting. Use the **▲** or **▼** key to select and press **ENTER** to accept.

8. Input

3G-A and 3G-B:

- Direct Mapping
- Dual HD

When Dual HD is selected, it is possible to use Swap links. If Swap links must be used, use the ▲ or ▼ key to select and press **ENTER** to accept. The check box will be checked.

Dual HD :

- Swap links

8.2.5 5 cable input

How to select

Select 5 cable and press **ENTER** to open the selections

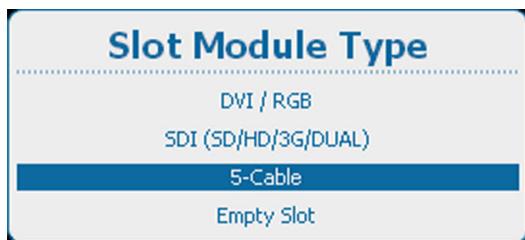


Image 8-7
Slot module type, 5-cable

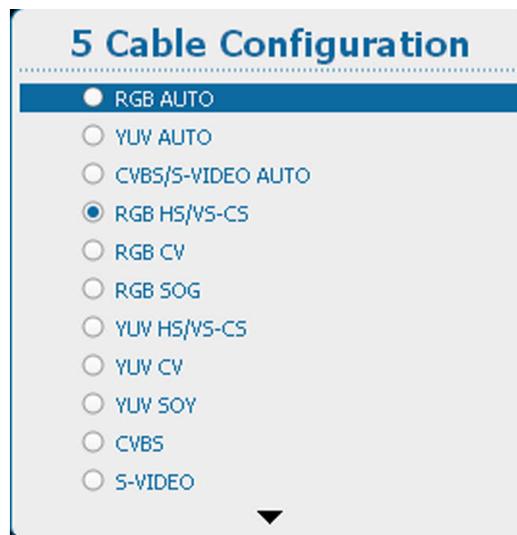


Image 8-8
5 cable configuration

Use the **▲** or **▼** key to select the desired configuration and press **ENTER** to select.

When e.g. CVBS/S-VIDEO AUTO is selected, the projector discovers itself which type of signal is connected to it and loads the correct settings.

For RGB selections, advanced settings are possible. To adjust these advanced settings, use the **▲** or **▼** key to select *Advanced settings* and press **ENTER**. The advanced settings menu opens:

Press **ENTER** to toggle between [Analog] and [TTL].

8.3 Input locking

What is possible?

The output signal can be locked on an internal sync signal or on the sync signal of one of the input sources. Or it can follow the input of the Main window or Pip window. When locked to the corresponding input sync, the output will be shown without movement artifacts. With locking to a specific input, a set of projectors can be kept in sync, no matter what input image is shown.

How to set up

1. Press **Menu** to activate the menus and select *Input* → *Input locking*.
2. Press **ENTER**.
The Input locking window is displayed with the current selection.
3. Use the **▲** or **▼** key to select a input to lock on.



Image 8-9
Main window

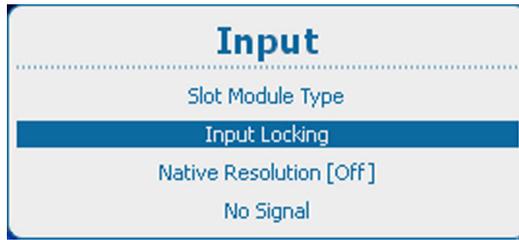


Image 8-10
Input



Image 8-11
Input locking

| | |
|----------------------|--|
| Input on Main window | Output is locked on the selected source of the main window |
| Input on PIP window | Output is locked on the selected source of the Pip window |
| Input 1 | Output is locked on input 1 |
| Input 2 | Output is locked on input 2 |
| Input 3 | Output is locked on input 3 |
| Input 4 | Output is locked on input 4 |
| Free run | Output is locked on an internal sync (60 Hz or manual setup) |



When Input locking is set to a specific input and there is no sync signal available, the locking will be switched to Free run without changing the user settings. Once the sync is available, it applies again the user settings.

Options for Free Run

When free run is selected, radio button selected, then the Free Run Options become available.



Image 8-12
Free run options

Use the ▲ or ▼ key to select *Fixed 60 Hz* or *Manual* and press **ENTER** to select.

Fixed 60 Hz: locking is done on an internal sync of 60 Hz

Manual locking is done on the indicated vertical frequency which can be changed by the user (between 24 Hz and 60 Hz).

To change the locking frequency for Manual, use the ▲ or ▼ key to select *Vert freq* and press **ENTER** to activate.



Image 8-13
Free run, manual setting

Use the ▲ or ▼ key to change the value.

8.4 Native resolution

What can be done

The aim here is to always show the resolution of the source independently of the resolution of the DMD panels.

When the resolution of the source is exactly the resolution of the DMD panels, then the full content will be shown on the full DMD (A).

When the resolution of the source is higher than the resolution of the DMD panels, then only part of the image will be shown (B)

When the resolution of the source is lower than the resolution of the DMD panels, then the full image will be shown but only on part of the DMD is used.

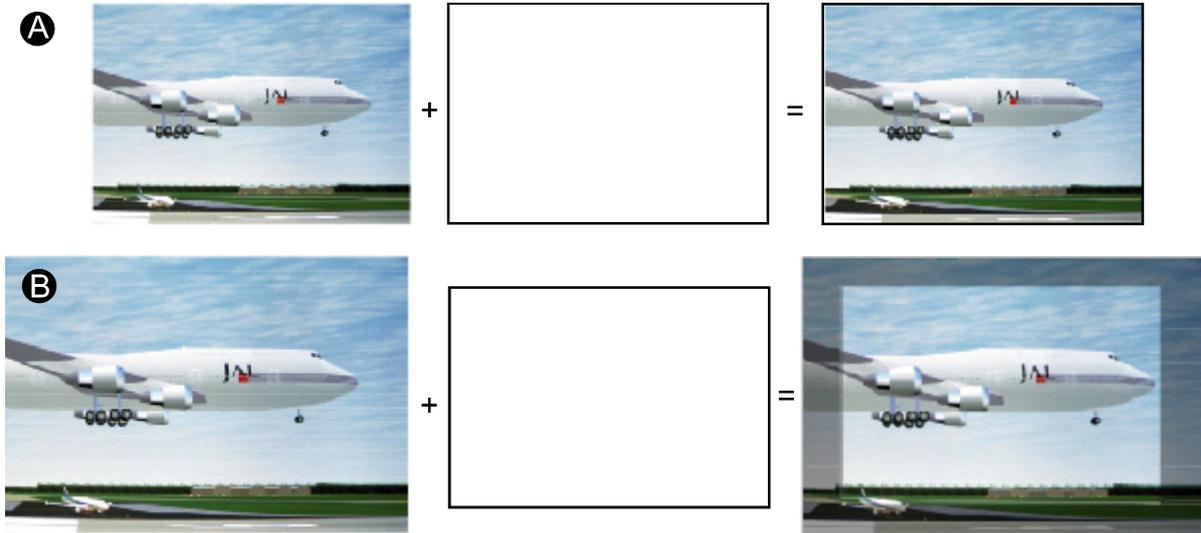


Image 8-14

When the *show native resolution* function is in the ON position, the projector handles the source as follows:

| Source | | | Projected image | | |
|--------|-------|------------|-----------------|------------|--|
| Name | Ratio | Resolution | Ratio | Resolution | |
| XGA | 4:3 | 1024x768 | 4:3 | 1024x768 | image projected with black borders |
| SXGA | 5:4 | 1280x1024 | 5:4 | 1280x1024 | image projected with black borders |
| SXGA+ | 4:3 | 1400x1050 | 4:3 | 1400x1050 | image projected with black borders |
| UXGA | 4:3 | 1600x1200 | 4:3 | 1600x1200 | image projected with black borders left and right. |
| WUXGA | 16:10 | 1920x1200 | 16:10 | 1920x1200 | normal image projected |

How to toggle to native resolution?

1. Press **Menu** to activate the menus and select *Input → Native Resolution [On]*.

2. Press **ENTER** to toggle between [On] and [Off].

[On] : images displayed in native resolution

[Off] : images scaled to fill the complete screen

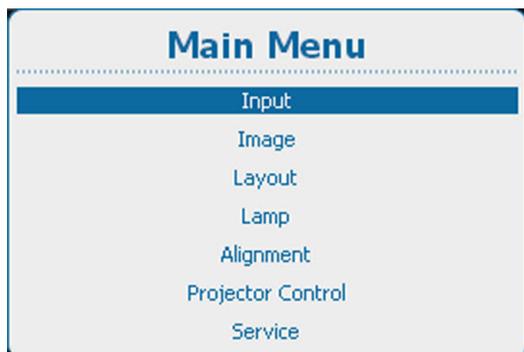


Image 8-15
Main window

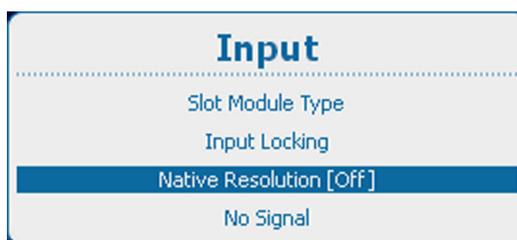


Image 8-16
Input, native resolution

8.5 No Signal

Overview

- Background color
- Background Logo
- Shutdown settings
- Shutdown retarding time
- Auto Dimming

What can happen when no signal

When no signal is available at the selected input, the output can be set to blue or black or a personal defined logo can be displayed or the projector can shutdown after a certain time or auto dimming can be started.

8.5.1 Background color

How to set the background color

1. Press **Menu** to activate the menus and select *Input* → *No Signal*. → *Color*.
2. Press **ENTER** to toggle between *[Blue]* or *[black]*.

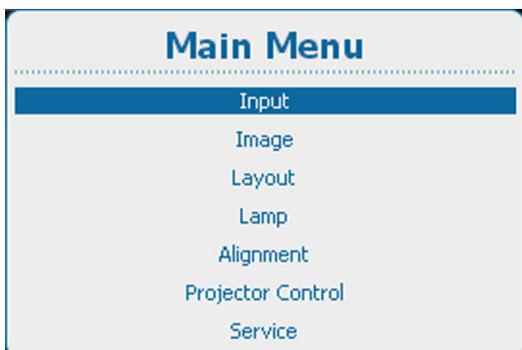


Image 8-17
Main window

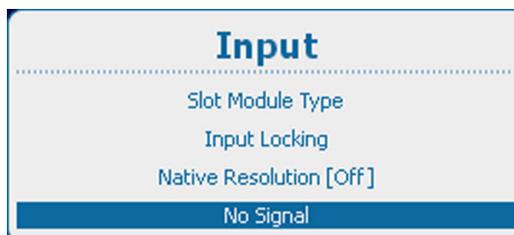


Image 8-18
Input, no signal



Image 8-19
No signal, color

8.5.2 Background Logo

What can be done ?

A logo can be switched on or off.

When logo is switched on and a logo is available, that logo will be displayed when no signal is available for the main window and no signal available for the PiP window in case PiP is On..

How to activate logo

1. Press **Menu** to activate the menus and select *Input* → *No Signal*. → *Logo*.
2. Press **ENTER** to toggle between *[On]* or *[Off]*.

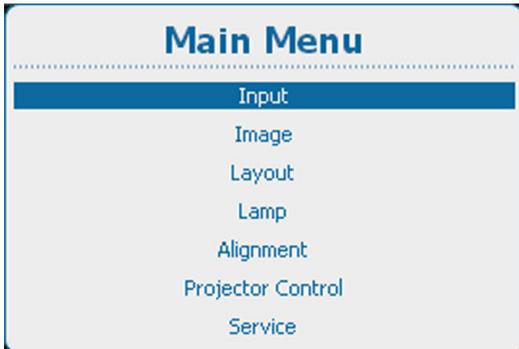


Image 8-20
Main window

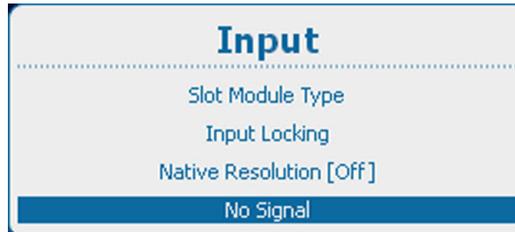


Image 8-21
Input, no signal

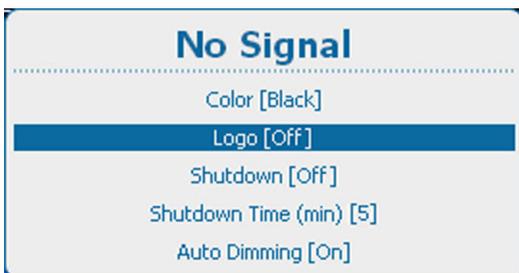


Image 8-22
No signal, logo



A dedicated logo can be loaded via Projector Toolset with a HDX plug-in installed.

8.5.3 Shutdown settings

How to change the settings

1. Press **Menu** to activate the menus and select *Input* → *No Signal*. → *Shutdown*.



Image 8-23
Main window

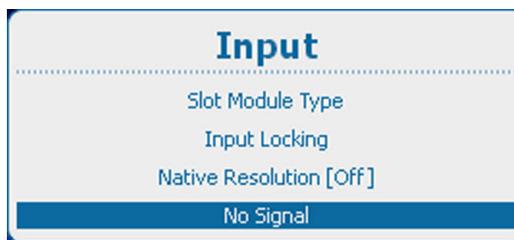


Image 8-24
Input, no signal

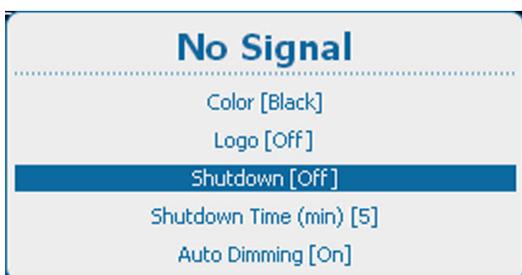


Image 8-25
No signal, shutdown

2. Press **ENTER** to toggle between *[On]* and *[Off]*.
[On] : projector goes in shutdown after a certain retarding time.
[Off] : projector does not go in shutdown.

8.5.4 Shutdown retarding time

About the shutdown retarding time

The retarding time is the time between no signal is detected and the moment that the projector shuts down.

How to set the retarding time

1. Press **Menu** to activate the menus and select *Input* → *No Signal*. → *Shutdown time (min)*.

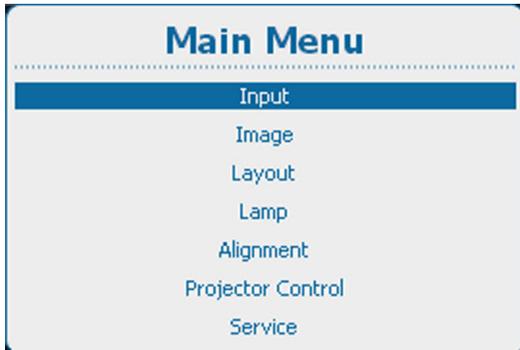


Image 8-26
Main window

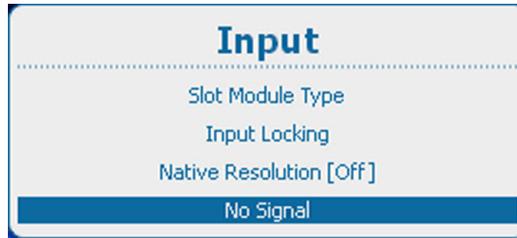


Image 8-27
Input, no signal

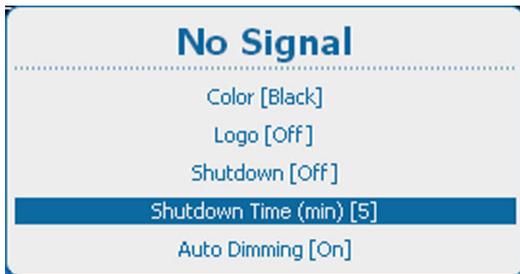


Image 8-28

2. Press **ENTER** to toggle between [1], [3], [5] and [10] minutes.

8.5.5 Auto Dimming

About auto dimming

When no signal is detected on the selected input the lamp power will be reduced from the current value to its minimum value. When the input signal is re-detected, the lamp power is restored to its original value.

How to set up

1. Press **Menu** to activate the menus and select *Input* → *No Signal*. → *Auto Dimming*.

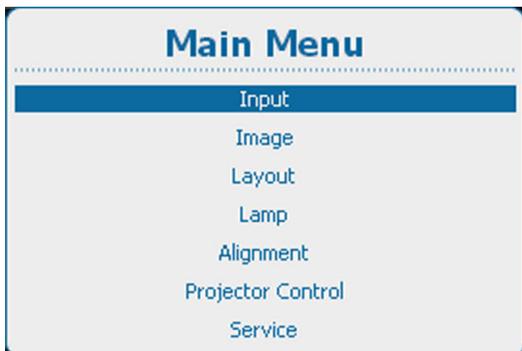


Image 8-29
Main window

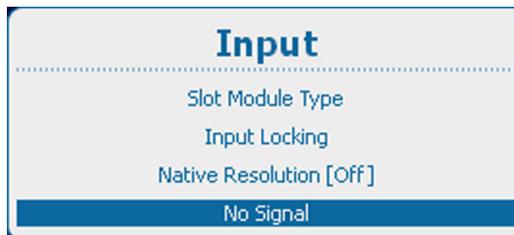


Image 8-30
Input, no signal

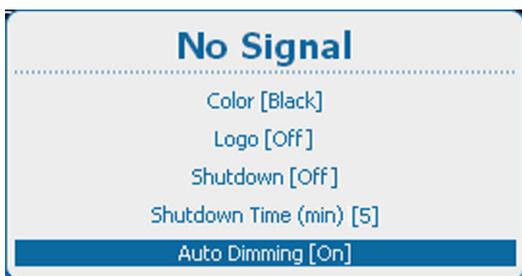


Image 8-31
No signal, auto dimming

2. Press **ENTER** to toggle between *[On]* or *[Off]*.
 [On] : when no signal, auto dimming is started.
 [Off] : when no signal, no auto dimming is started.

9. IMAGE

Overview

- Image menu overview
- Start up the Image adjustments
- Image settings
- Aspect Ratio
- Timings
- Image File Services
- Save custom settings

9.1 Image menu overview

Overview table

| Level 1 | Level 2 | Level 3 | Level 4 |
|---------|----------------------|-------------------------|-----------------|
| Image | Image settings | Contrast | |
| | | Brightness | |
| | | Saturation | |
| | | Tint | |
| | | Phase | |
| | | Sharpness | |
| | | Color Temperature | Projector white |
| | | | Computer 9300 |
| | | | Video 6500 |
| | | | Film 5400 |
| | | | Broadcast 3200 |
| | | | Customr Balance |
| | | Input Balance | Black Balance |
| | | | White Balance |
| | Aspect ratio | 4:3 | |
| | | 16:9 | |
| | | 5:4 | |
| | | 2.35 | |
| | | 1.88 | |
| | | 1.85 | |
| | | 1.78 | |
| | | 1.67 | |
| | | 16:10 | |
| | | Custom | |
| | Timings | Horizontal Total Pixels | |
| | | Active pixels | |
| | | Horizontal start | |
| | | Period | |
| | | Total vertical lines | |
| | | Active lines | |
| | | Vertical start | |
| | | Advanced settings | Clamp delay |
| | | | Clamp width |
| | Image file service | Manual load | |
| | | File load filter | |
| | | Delete | |
| | | Delete all | |
| | | Rename | |
| | | Copy | |
| | | Options | |
| | Save custom settings | | |

9.2 Start up the Image adjustments

Start up

1. Press **Menu** to activate the menus and select *Image*

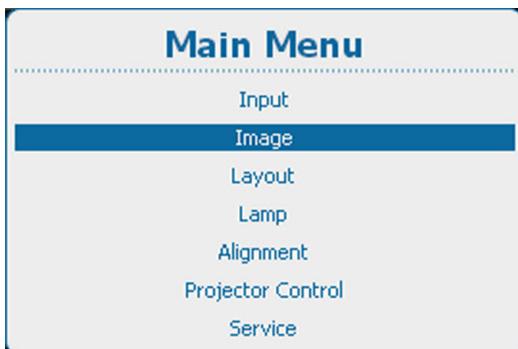


Image 9-1
Main menu, Image



Image 9-2
Image adjustments

9.3 Image settings

About image settings

Depending on the type of the connected source, some settings are grayed out

9.3.1 Contrast

About Contrast

The contrast function is used to adjust the contrast between the light and the dark areas of the displayed image. It applies a gain to the red, green and blue signals.

Contrast adjustment can be done with the **Contrast** key on the RCU or via the menu structure.

How to adjust

1. Press **Menu** to activate the menus and select *Image* → *Image Settings* → *Contrast*.

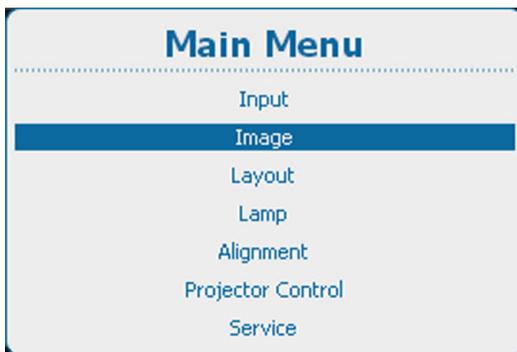


Image 9-3
Main menu, Image



Image 9-4
Image adjustments

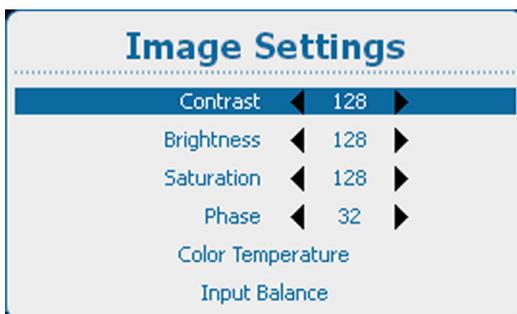


Image 9-5
Image settings, contrast

2. Press **ENTER** to select.
3. To change the value directly in the Image Settings window, use the ◀ or ▶ key or a numeric key 0-9 to adjust as a % of the full range.
To adjust via the bar scale menu, press **ENTER** to display the *Contrast* menu and adjust with the ◀ or ▶ key. Press **ENTER** again to enter the value directly with the numeric keys. Press **EXIT** to return to *Image Settings* menu.

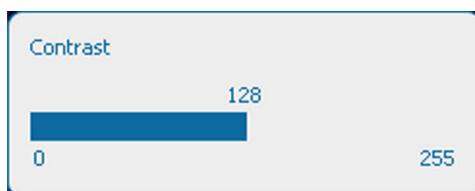


Image 9-6
Contrast adjustment

9.3.2 Brightness

About brightness

The brightness function is used to adjust the black level in the input picture. It adds or subtracts an offset, or bias in to the red, green and blue signals.

Brightness adjustment can be done with the **Brightness** key on the RCU or via the menu structure.

How to adjust

1. Press **Menu** to activate the menus and select *Image* → *Image Settings* → *Brightness*.

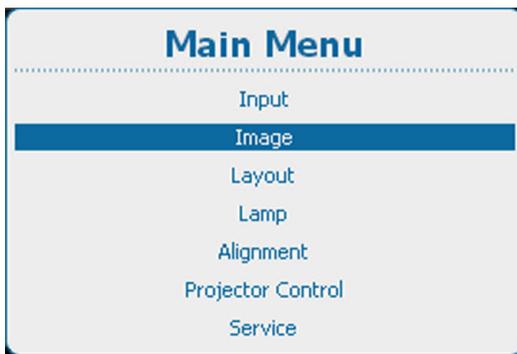


Image 9-7
Main menu, Image



Image 9-8
Image adjustments

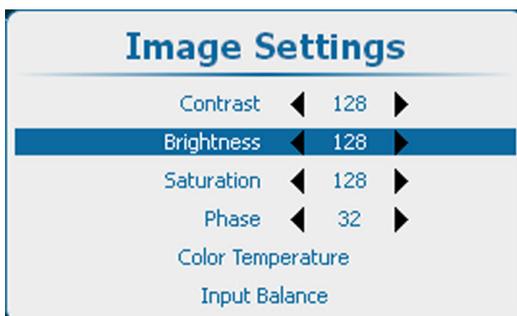


Image 9-9
Image settings, brightness

2. Press **ENTER** to select.
3. To change the value directly in the Image Settings window, use the ◀ or ▶ key or a numeric key 0-9, to adjust as a % of the full range.
To adjust via the bar scale menu, press **ENTER** to display the *Brightness* menu and adjust with the ◀ or ▶ key. Press **ENTER** again to enter the value directly with the numeric keys. Press **EXIT** to return to *Image Settings* menu.

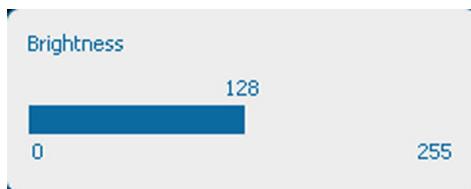


Image 9-10
Brightness adjustment

9.3.3 Saturation

About (color) saturation

The saturation function is used to adjust the color saturation levels.

Saturation adjustment can be done with the **Saturation** key on the RCU or via the menu structure.

How to adjust

1. Press **Menu** to activate the menus and select *Image* → *Image Settings* → *Saturation*.

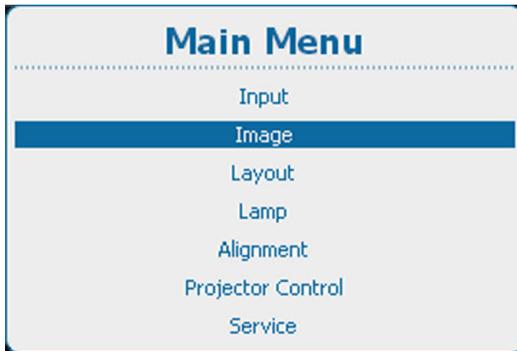


Image 9-11
Main menu, Image

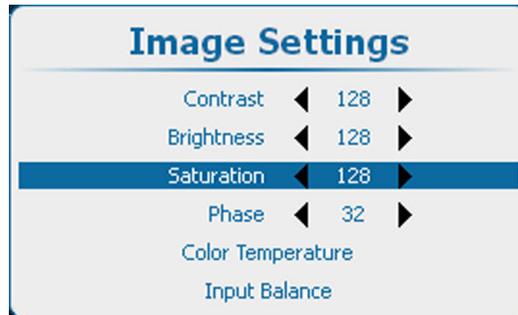


Image 9-12
Image settings, saturation

2. Press **ENTER** to select.

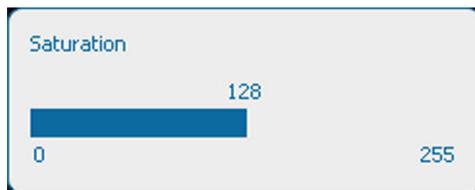


Image 9-13
Saturation adjustment

3. To change the value directly in the Image Settings window, use the ◀ or ▶ key or a numeric key 0-9, to adjust as a % of the full range.
To adjust via the bar scale menu, press **ENTER** to display the *Saturation* menu and adjust with the ◀ or ▶ key. Press **ENTER** again to enter the value directly with the numeric keys. Press **EXIT** to return to *Image Settings* menu.

9.3.4 Phase

About Phase adjustment

When displaying computer patterns or graphics (RGB or YUV signals) which are very detailed (tilting, vertical stripes, etc.), jitter in picture (mis-sampling) may occur, causing horizontal stripes in portions of the screen. When this jitter occurs, adjust 'Phase' for optimum image.

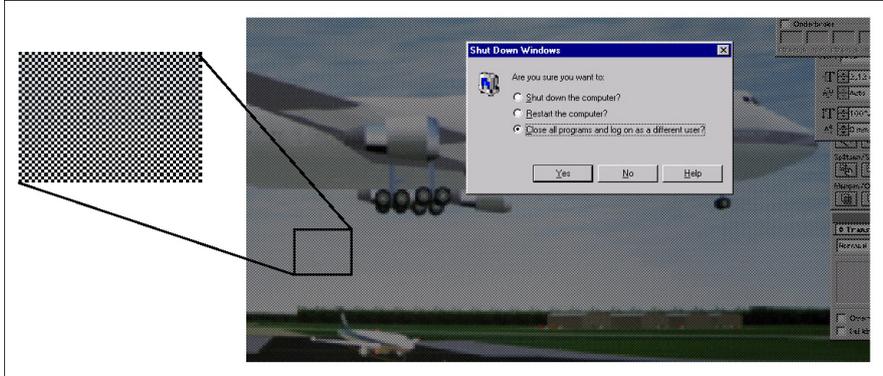


Image 9-14
Jittering on image

Phase adjustment can be done with the **Phase** key on the RCU or via the menu structure.

How to adjust

1. Press **Menu** to activate the menus and select *Image* → *Image Settings* → *Phase*.

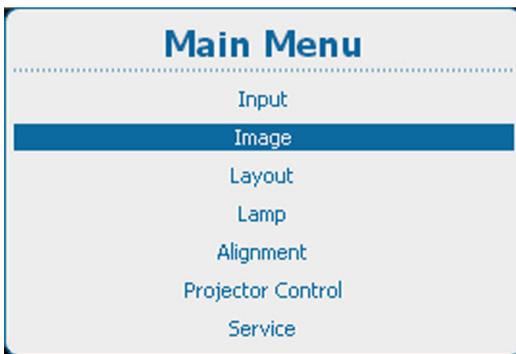


Image 9-15
Main menu, Image



Image 9-16
Image adjustments

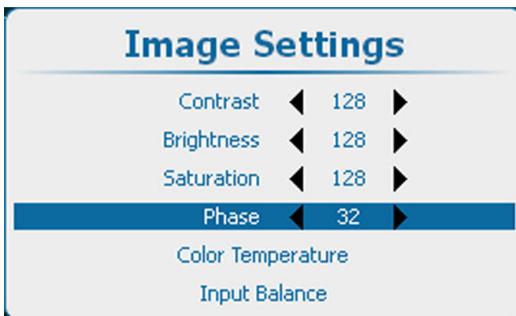


Image 9-17
Image settings, phase

2. Press **ENTER** to select.



Image 9-18
Phase adjustment

3. To change the value directly in the Image Settings window, use the ◀ or ▶ key or a numeric key 0-9, to adjust as a % of the full range.
To adjust via the bar scale menu, press **ENTER** to display the *Phase* menu and adjust with the ◀ or ▶ key. Press **ENTER** again to enter the value directly with the numeric keys. Press **EXIT** to return to *Image Settings* menu.

9.3.5 Color temperature (fixed values)



Color temperature

The coloration (reddish, white, bluish, greenish, etc.) of white in an image, measured using the Kelvin (degrees K) temperature scale. Higher temperatures output more light.



Projector white will provide maximum projector light output. The calibrated 'Broadcast', 'Film', 'Video' and 'Computer' presets will provide optimum color tracking.

How to select

1. Press **Menu** to activate the menus and select *Image* → *Image Settings* → *Color Temperature*.

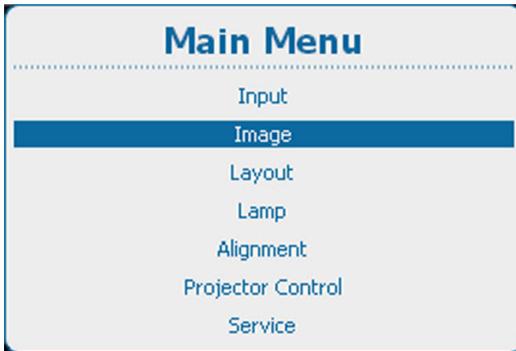


Image 9-19
Main menu, Image



Image 9-20
Image adjustments

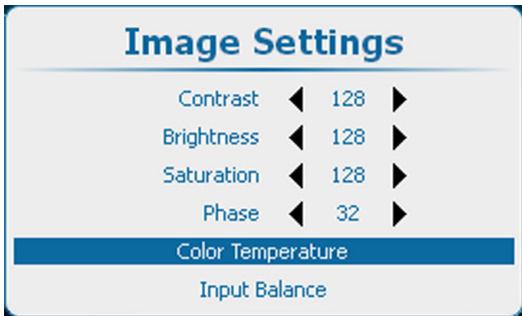


Image 9-21
Image settings, color temperature

2. Press **ENTER** to select.

The color temperature selection menu is displayed.

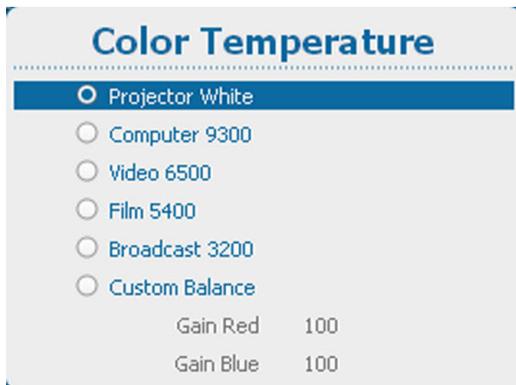


Image 9-22

Depending on the color space setting, a request window is displayed to ask if the color space setting should be switched to Off. Color temperature selection can only be done when the color space settings is set on *Off*.

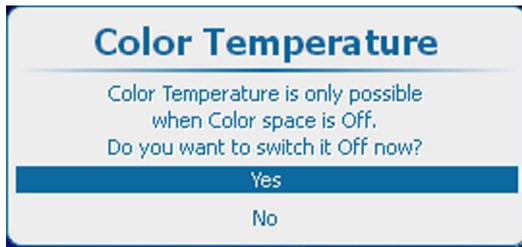


Image 9-23
Color temperature question

Click **Yes** to continue.

3. Use the ◀ or ▶ key to select the desired value. Press **ENTER** to accept.
The following fixed choices are possible :

- Projector White
- Computer 9300
- Video 6500
- Film 5400
- Broadcast 3200

Next to these 5 fixed temperatures, a custom setup is also possible.

9.3.6 Color temperature (custom values)

How to set up

1. Press **Menu** to activate the menus and select *Image* → *Image Settings* → *Color Temperature*.

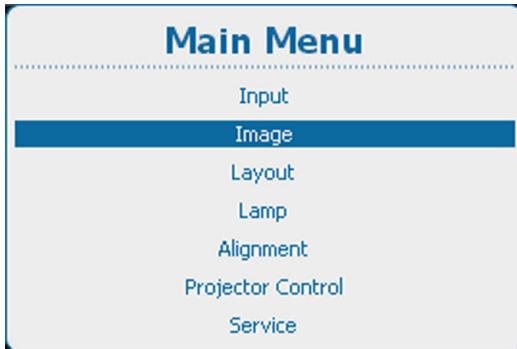


Image 9-24
Main menu, Image



Image 9-25
Image adjustments

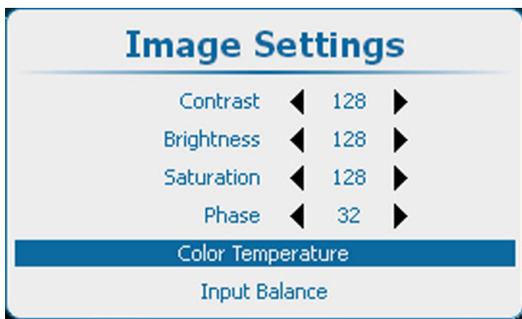


Image 9-26
Image settings, color temperature

2. Press **ENTER** to select.
3. Use the **▲** or **▼** key to select *Custom Balance*. Press **ENTER** to accept.

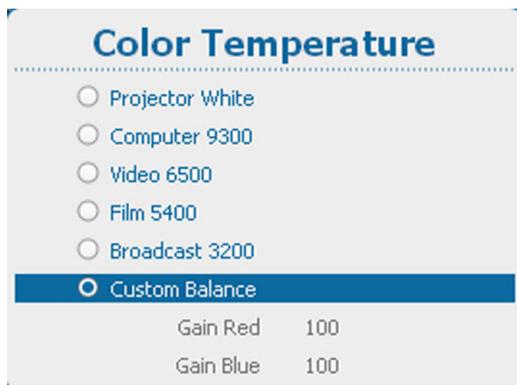


Image 9-27
Custom color temperature

4. Select Gain Red and press **ENTER**. Use the **◀** or **▶** key to adjust the red gain.
Select Gain Blue and press **ENTER**. Adjust the blue gain in the same way as the red gain using the **◀** or **▶** key.
5. When finished, press **EXIT** to return.

9.3.7 Input Balance

9.3.7.1 Introduction to Input Balance

Introduction: Unbalanced color signals

When transporting signals, there is always a risk of deterioration of the information contained in the signals.

In case of information contained in the amplitude of the signals which is the case of data color signals (R, G, B), image 9-28, we are quite sure that the amplitude of these color signals is subject to alterations.

An example of alteration may be a DC component added to the signal, in the form of a DC offset repositioning the black level, since this **black level** (“**brightness**”) will become crucial later on (clamping circuit) it will result in “black not being black”.

Another value that is subject to alteration is the amplitude of the signal, resulting in an altered “Gain” of the signal (“**white level**” or **contrast**).

The alterations of the three color signals will happen independently i.e. the colors will end to be unbalanced, image 9-29

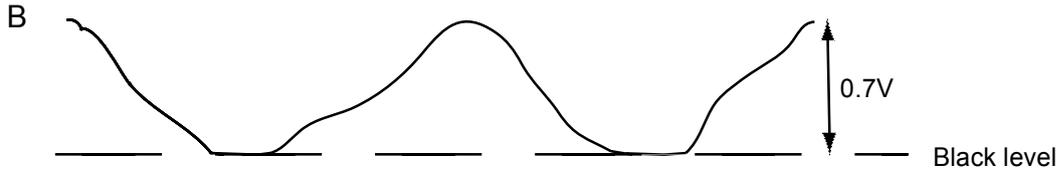


Image 9-28

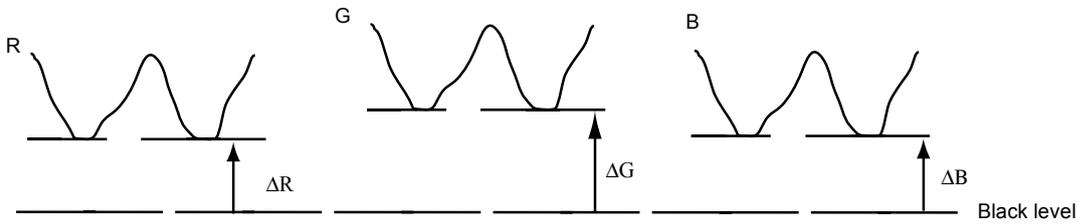


Image 9-29



One can conclude here that a good color tracking can only be met by using three previously (input) balanced color signals

Analog Digital Conversion

The analog color signals must pass through an Analog/Digital conversion circuit prior to any digital processing in the PMP.

A typical ADC transforms the analog value into an 8 bit coded digital signal.

The graphic shows that when converting a signal containing a DC offset component the range of the converter is not optimally used.

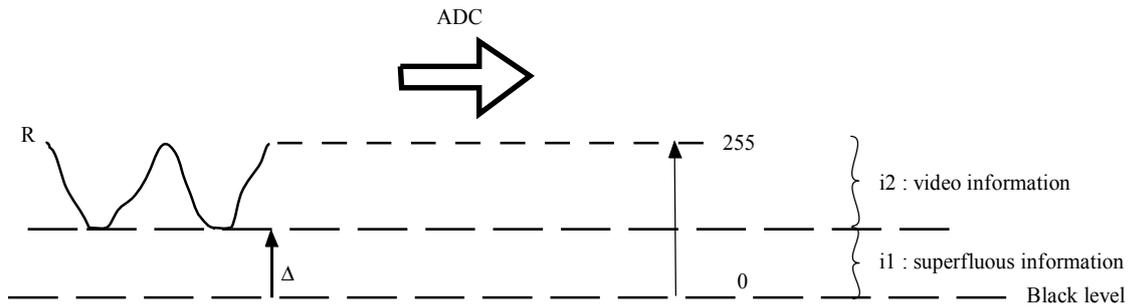


Image 9-30



One can conclude here that a good data conversion can only be met by using three previously (input) balanced color signals

The objective of input balancing

The objective in input balancing is to “set” the same black level and the same white level for the three colors of a particular input source.



Black level setting : brightness

White level setting : contrast

The same absolute black and white level for the three colors allows the same reference for Brightness and Contrast control of the picture !

These two references also set the range in which the ADC will work for that particular source (this explains also why each input balance setting is linked to a particular source and thus saved in the image file).

9.3.7.2 Adjusting the input balance

How can it be done ?

To balance the three color signals of a particular source there are conditions; in fact we must know the black and the white level of the source i.e. :

1. The source in question must be able to generate a white signal, ideally a 100% white (background) full screen pattern
2. The source in question must be able to generate a black signal, ideally a 100% black (background) full screen pattern

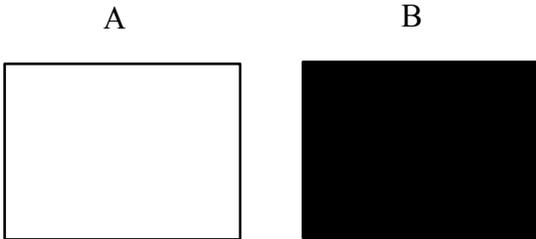


Image 9-31

White balance : In the projector, we will set the contrast for each color until we get a 100% light output picture when projecting a 100% white image (image A)

Black balance : In the projector, we will set the brightness for each color until we get a 0% light output picture when projecting a 100% black image (image B).



The changeover from min to max is indicated by the apparition of bright spots also called “digital noise”



An alternative to a full screen White/black pattern is the standard gray scale pattern, the white bar will be used for white balance and the black bar for black balance.

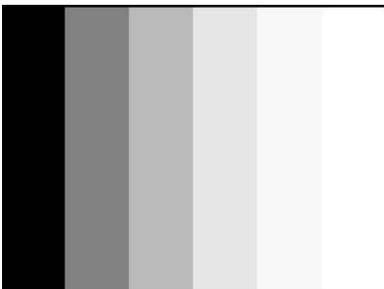


Image 9-32

How to adjust

1. Press **Menu** to activate the menus and select *Image* → *Image Settings* → *Input Balance*.

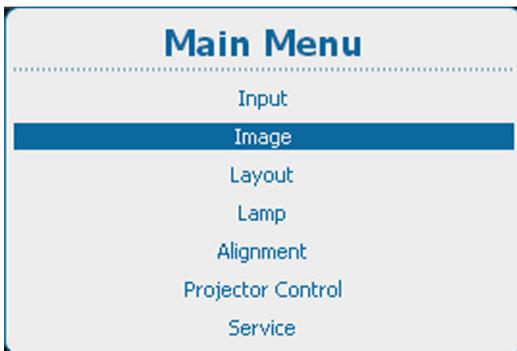


Image 9-33
Main menu, Image



Image 9-34
Image adjustments

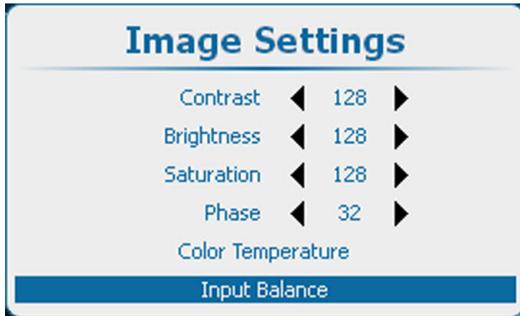


Image 9-35
Image settings, input balance

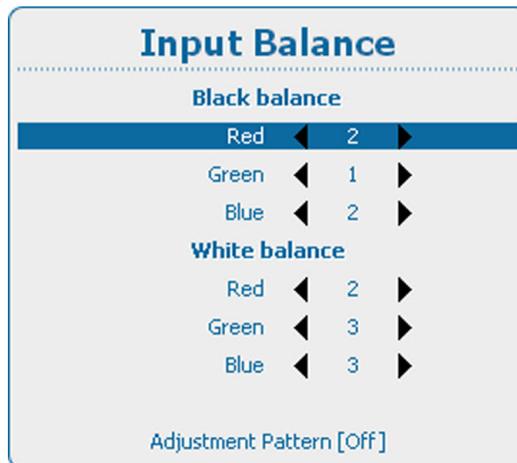


Image 9-36

2. Press **ENTER** to select.
 3. Do you want to use an internally generated test pattern ?
If yes, use the **▲** or **▼** key to select *Adjustment Pattern* and press **ENTER** to toggle between [on] and [off]
If no, adjust on the selected source.
 4. Use the **▲** or **▼** key to select *Red* below *Black balance* and press **ENTER**.
 5. Adjust the red black level on a minimal value
 6. Use the **▲** or **▼** key to select *Black balance blue* and adjust the blue black level on a minimal value.
Note: *This minimal value is not necessary, provided that the 2 other colors are not influencing too much the color to be adjusted, in fact the aim is to minimize the effect of the two other colors since there is a risk of reaching too soon the 50% transition due to the contribution of these two other colors signals.*
 7. Use the **▲** or **▼** key to select *Black balance green* and adjust the Green black level until bright spots appear on the screen.
 8. Use the **▲** or **▼** key to select *Black balance blue* and adjust the Blue black level until bright spots appear on the screen.
 9. Use the **▲** or **▼** key to select *Black balance red* and adjust the Red black level until bright spots appear on the screen.
- The projected image should now be noisy full black



If one uses a gray scale pattern, the bright spots should appear in the black bar.

Performing White input balance

1. Connect the source you want to project.
2. Press **Menu** to activate the menus and select *Image* → *Image Settings* → *Input Balance*.

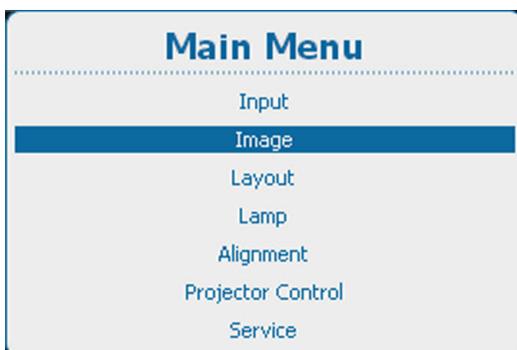


Image 9-37
Main menu, Image

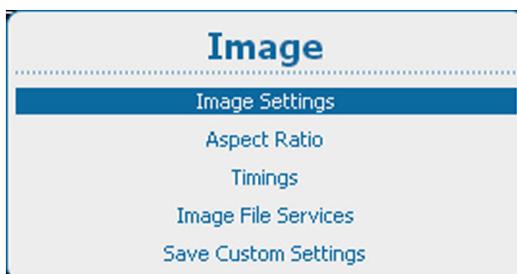


Image 9-38
Image adjustments

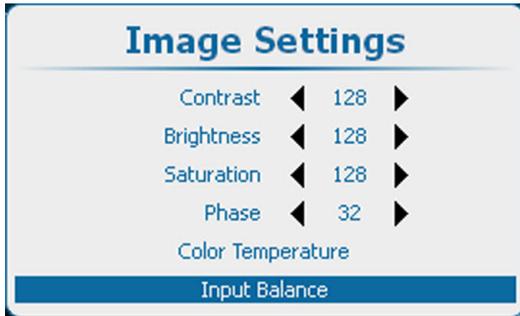


Image 9-39
Image settings, input balance

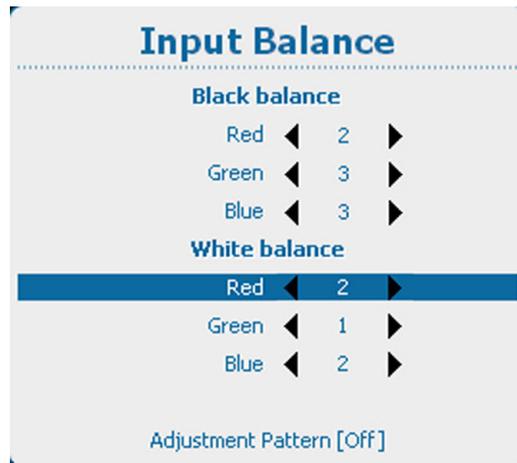


Image 9-40
Input balance, white balance

3. Press **ENTER** to select.
4. Do you want to use an internally generated test pattern ?
If yes, use the **▲** or **▼** key to select *Adjustment Pattern* and press **ENTER** to toggle between [on] and [off]
If no, select a white pattern (or gray scale as alternative).
5. Use the **▲** or **▼** key to select *White balance red*.
6. Adjust the red white level (gain) on a minimal value
7. Use the **▲** or **▼** key to select *White balance blue* and adjust the blue white level (gain) on a minimal value.
Note: *This minimal value is not necessary, provided that the 2 other colors are not influencing too much the color to be adjusted, in fact the aim is to minimize the effect of the two other colors since there is a risk of reaching too soon the transition (bright spots) due to the contribution of these two other colors signals.*
8. Use the **▲** or **▼** key to select *White balance green* and adjust the Green white level (gain) until bright spots appear on the screen.
9. Use the **▲** or **▼** key to select *White balance blue* adjust the Blue white level (gain) until bright spots appear on the screen.
10. Use the **▲** or **▼** key to select *White balance red* adjust the Red white level (gain) until bright spots appear on the screen.

The projected image should now be noisy neutral gray.

How to adjust for an YUV signal

Use a gray bar test pattern

1. Turn the green black balance back to - 20.
2. Adjust the Red black balance until red dots are visible in the black bar.
3. Adjust the Blue black balance until blue dots are visible in the black bar.
4. Adjust the Green black balance until first gray dots in the black bar (only in the black bar, the rest must be mid gray, except the white bar).
5. If you see multiple or no white bars in stead of one, change white balance for green (higher or lower) until only one bar is visible.

9.4 Aspect Ratio



Aspect ratio

Relation between the horizontal & vertical dimension in which the window will be displayed, e.g. 4 by 3 or 16 by 9. Can also be expressed as a decimal number, such as 1.77. The larger the ratio or decimal, the wider the image (or the less the image is squared).

What can be done?

The aspect ratio setting forces the projector to project an image using a defined aspect ratio.

| Aspect ratio | Description |
|--------------|---|
| 4:3 | Standard television format |
| 16:9 | Wide screen television format / anamorphic format |
| 5:4 | Workstation format |
| 2.35 | Film format |
| 1.88 | Digital cinema 2K aspect ratio |
| 1.85 | 35 mm US and UK wide screen standard film format |
| 1.78 | Wide screen television format / anamorphic format |
| 1.67 | European film ratio (also 1280x768) |
| 16:10 | Wide screen cinema format (WUXGA format) |
| Custom | Any custom format can be set up |

Some example images:

4/3 signal



16/9 RGB signal



Image 9-41
Example images aspect ratio

How to set

1. Press **Menu** to activate the menus and select *Image* → *Aspect Ratio*.

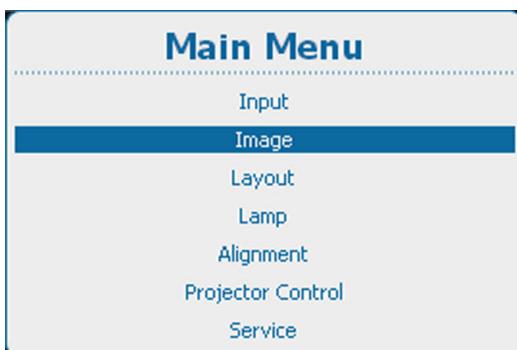


Image 9-42
Main menu, Image

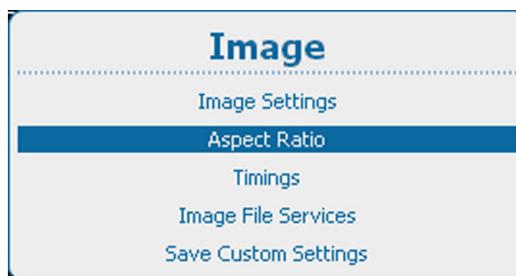


Image 9-43
Image, aspect ratio

2. Press **ENTER** to select.
3. Use the **▲** or **▼** key to select the desired aspect ratio.

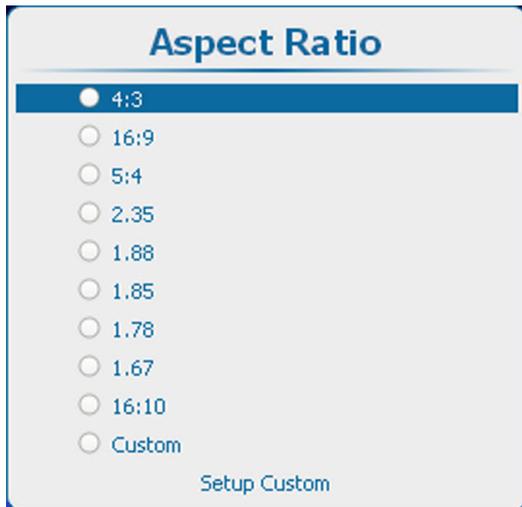


Image 9-44
Aspect ratio

4. Press **ENTER** to activate.

How to set up the custom aspect ratio

1. While Custom is selected, use the **▲** or **▼** key to select *Setup Custom* and press **ENTER**.

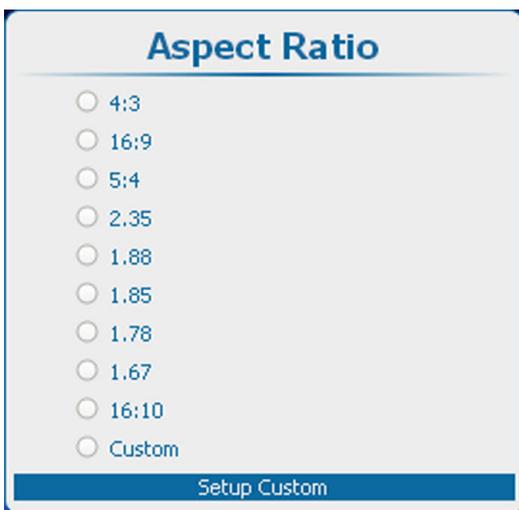


Image 9-45
Custom aspect ratio

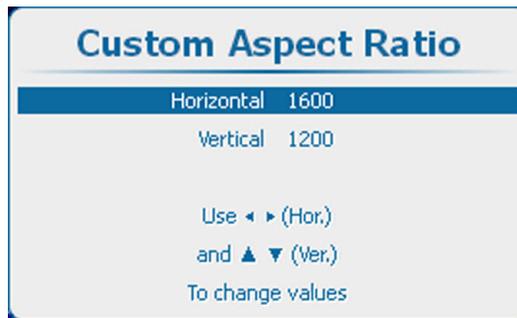


Image 9-46
Custom aspect ratio adjustment

The custom aspect ratio setup menu opens.

2. Use the **▲** or **▼** key to adjust the vertical size (height) of the image.
Use the **◀** or **▶** key to adjust the horizontal size (width) of the image.

9.5 Timings

9.5.1 Source timings

Adjustable items

- Horizontal start in pixels : number of pixels between the horizontal sync and active video information in the input signal.
- Horizontal Active = Active horizontal pixels (width) : number of active pixels in the input signal. This value is normally given in the source specifications. If not, adjust until full image is displayed (no missing pixels).
- Vertical start in lines : number of lines between the vertical sync signal and active video information in the input signal.
- Vertical Active = Active vertical lines : number of active lines in the input signal. This value is normally given in the specification of the source. If not, adjust until full image height is displayed (no missing lines).
- Total pixels: Total horizontal pixels in the source. If the value is wrong, sampling mistakes (small vertical bars in the projected image) will be seen in the image.
- Total lines: Total lines in the source.

How to set up

1. Press **Menu** to activate the menus and select *Image* → *Timings*.

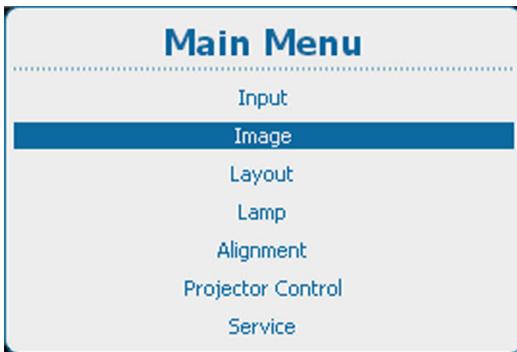


Image 9-47
Main menu, Image

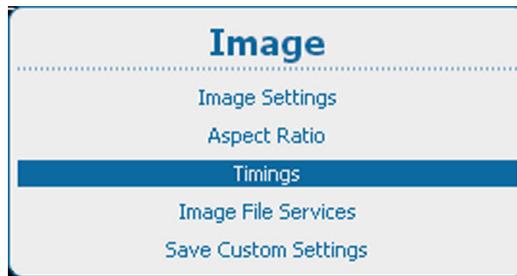


Image 9-48
Image, timings



Image 9-49
Timings window

2. Press **ENTER** to select.
3. Use the ▲ or ▼ key to select a setting.
4. Use the ◀ or ▶ key to change the value
 Or,
 press **ENTER** to open the specific adjustment menu. Follow the adjustment method as described in "Navigation and adjustments", page 89.
5. Continue with the other settings in the same way until all timings are set.

9.5.2 Advanced timings, clamp delay - clamp width

About the advanced settings

- Clamp delay The time between the trailing edge of the sync pulse and the leading edge of the clamp pulse, in pixels.
Can be any value between 0 and 255.
- Clamp width The width of the clamp pulse can be any value between 0 and 255.

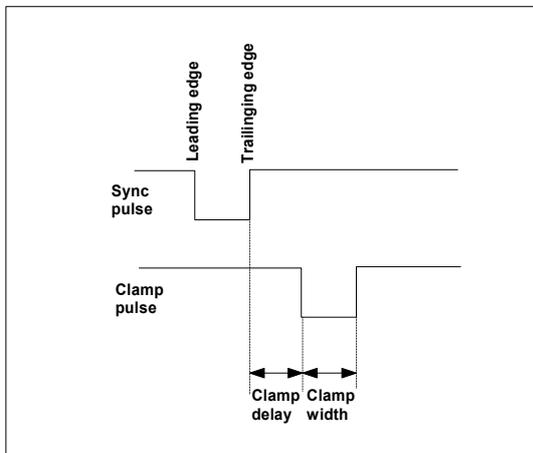
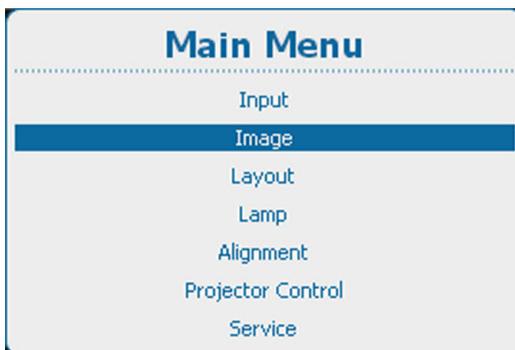
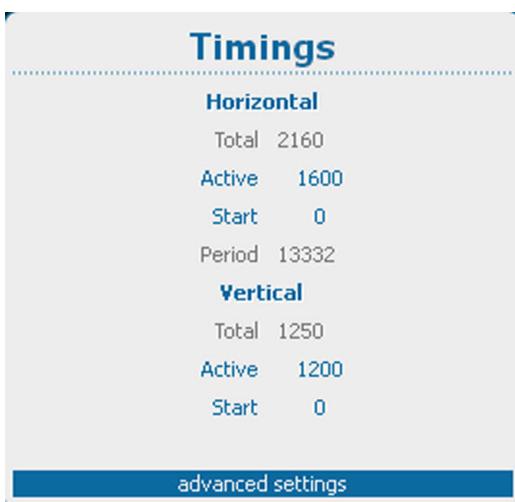


Image 9-50

How to change the clamp delay - clamp width

1. Press **Menu** to activate the menus and select *Image* → *Timings* → *Advanced settings*.

Image 9-51
Main menu, ImageImage 9-52
Image, timingsImage 9-53
Timings, advanced settings

2. Press **ENTER** to select.



Image 9-54
Clamp delay

3. Use the ▲ or ▼ key to select *Clamp Delay* or *Clamp Width* and use the ◀ or ▶ key to change the value.
Or,
press **ENTER** to open the specific adjustment menu. Follow the adjustment method as described in "Navigation and adjustments", page 89.

9.6 Image File Services

9.6.1 Files and file manipulations

Connecting a new source.

Source dependent adjustments like image settings, aspect ratio and timings are stored in a dedicated image file.

Before using a new source, a correct image file has to be installed. The projector's memory contains a list of files corresponding to the most used sources. When the new source corresponds with one of these files, the file can be loaded and saved for future use. When there is a little difference, the file can also be loaded and then edited until the source specs are reached.

VESA standards and video standards are pre-programmed.

Possible file Manipulations

The following file manipulations are possible :

- Load : load the settings of a selected file for the current selected source of the active window (main or PiP)
- Rename : renaming a file.
- Delete : deleting a file (only custom files)
- Delete all : delete all custom files
- Options : way of loading a file when a source is selected.

9.6.2 Manual Load file

How to load

1. Press **Menu** to activate the menus and select *Image* → *Image File Services* → *Manual Load*.

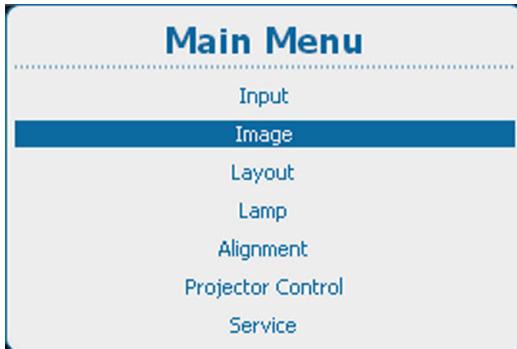


Image 9-55
Main menu, Image



Image 9-56
Image, image file services

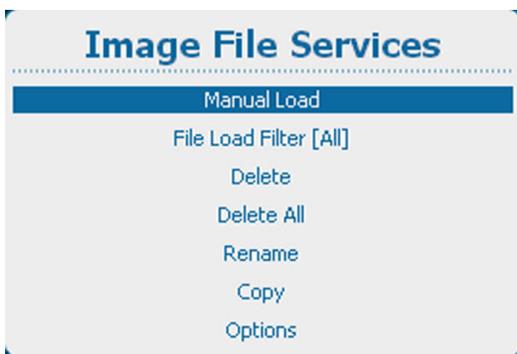


Image 9-57
Image file services

2. Press **ENTER** to select.

Depending on the *File Load Filter* setting a full list or a list fitting the selected source is displayed.

When staying for at least 3 seconds on the same file selection after scrolling through the list of image files a pre-load is started.



Image 9-58
Load file

3. Use the **▲** or **▼** key to select the desired file and press **ENTER** to load this file.

The image is not perfect

If the displayed image is not correct after selecting the best fitting file, go to the *Timings* menu and change the file settings.

9.6.3 File Load Filter

About the filter setting

Depending on the load file filter, the load list can be reduced to the fitted files or can be expanded to show all files.

[Fit] : reduced list corresponding with the input source.

[All] : full list with all available files in the projector.

How to set up

1. Press **Menu** to activate the menus and select *Image* → *Image File Services* → *File Load Filter*.

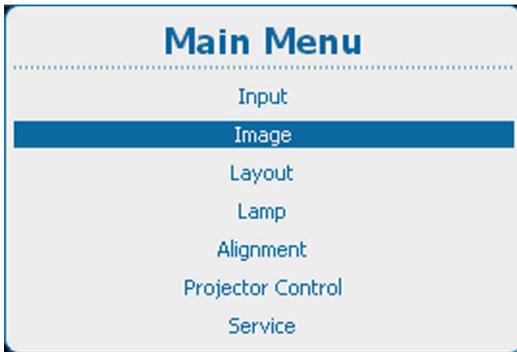


Image 9-59
Main menu, Image

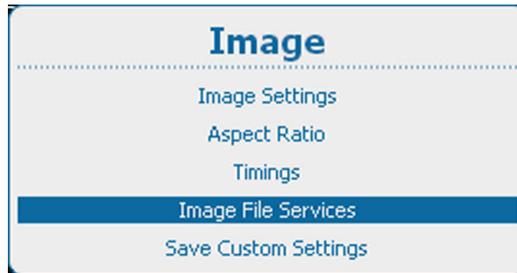


Image 9-60
Image, image file services

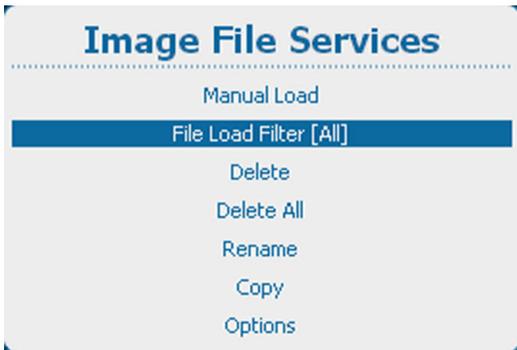


Image 9-61
File load filter

2. Press **ENTER** to toggle between *[All]* and *[Fit]*.

9.6.4 Delete a file

What can be done ?

A custom image file can be deleted. Be aware that an active file can't be deleted.

How to delete

1. Press **Menu** to activate the menus and select *Image* → *Image File Services* → *Delete*.

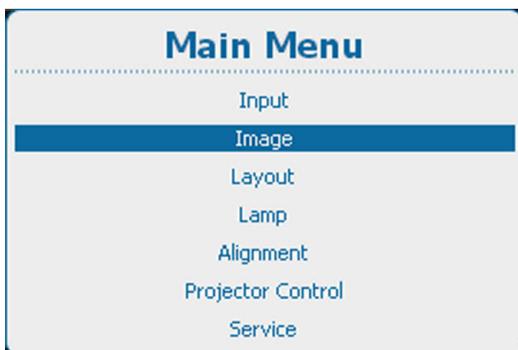


Image 9-62
Main menu, Image

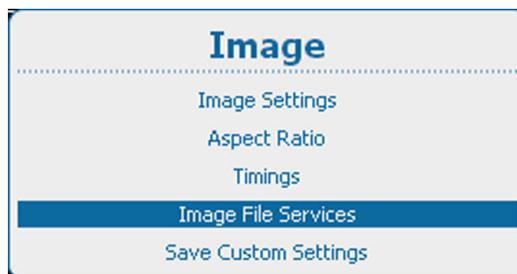


Image 9-63
Image, image file services



Image 9-64
Image file services, delete

2. Press **ENTER** to select.

The available custom files are displayed.

If no custom files are available, a message that no custom files are available is displayed.

3. Use the **▲** or **▼** key to select the file to delete.



Image 9-65
Delete custom file

4. Press **ENTER** to delete the selected file.



No recovery possible !

9.6.5 Delete all custom files

What can be done ?

All custom image files can be deleted by executing a single command. Be aware that an active file can't be deleted.



Image files of active sources on input 1 to 4 cannot be deleted.

How to delete

1. Press **Menu** to activate the menus and select *Image* → *Image File Services* → *Delete*.

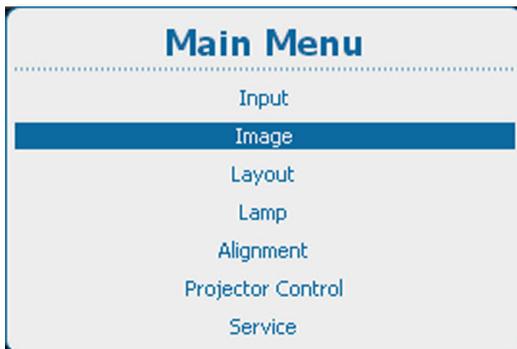


Image 9-66
Main menu, Image

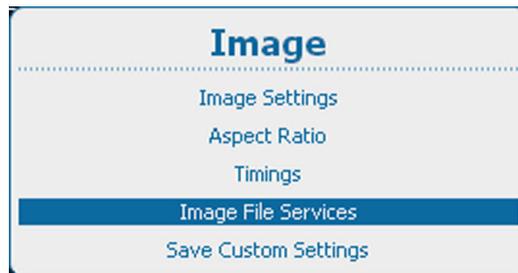


Image 9-67
Image, image file services

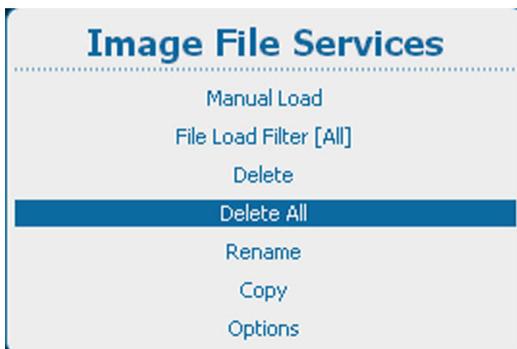


Image 9-68
Delete all custom files

If no custom files are available, a message that no custom files are available is displayed.

2. Use the ▲ or ▼ key to select *Yes* or *No*.

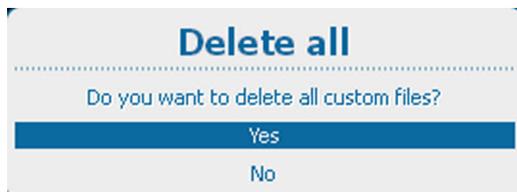


Image 9-69
Delete all

3. If *Yes* is selected, press **ENTER** to delete all custom files.
If *No* is selected, press **ENTER** to return to the *Image File Services* menu without deleting any custom file.



No recovery possible !

9.6.6 Rename custom files



A rename operation is only applicable for custom image files.

How to rename

1. Press **Menu** to activate the menus and select *Image* → *Image File Services* → *Rename*.

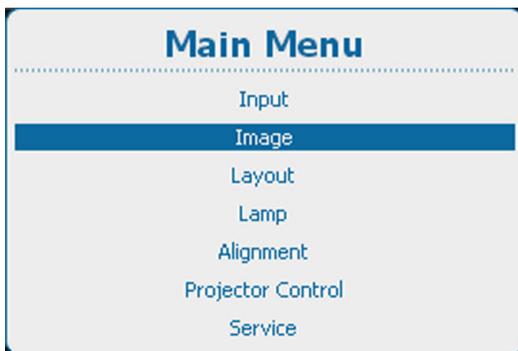


Image 9-70
Main menu, Image



Image 9-71
Image, image file services

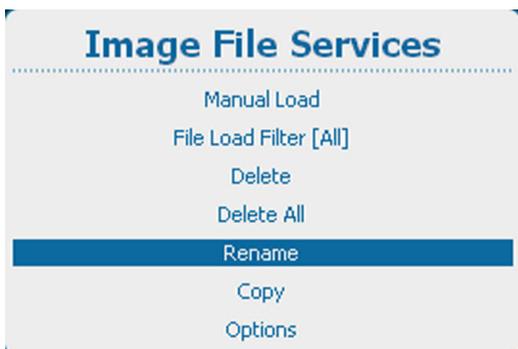


Image 9-72
Image file services, rename

2. Press **ENTER** to select.

The available custom files are displayed.

If no custom files are available, a message that no custom files are available is displayed.

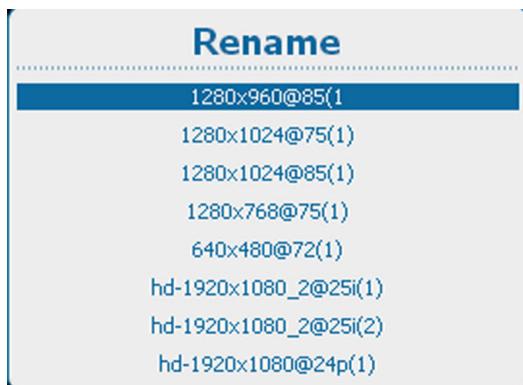


Image 9-73
Rename, list of files

3. Use the **▲** or **▼** key to select the file to rename and press **ENTER**.

The rename window opens.



Image 9-74
Rename file

4. Use the ▲ or ▼ key to change the selected character.
Use the ◀ or ▶ key to select another character.
Note: *Digits can be entered with the digit keys on the remote control or the local keypad. When a digit is entered in that way, the next character will be selected automatically. Arrow key left (◀) has the backspace functionality.*
5. Press **ENTER** to finalize the rename action.

9.6.7 Copy custom file

How to copy

1. Press **Menu** to activate the menus and select *Image* → *Image File Services* → *Copy*.

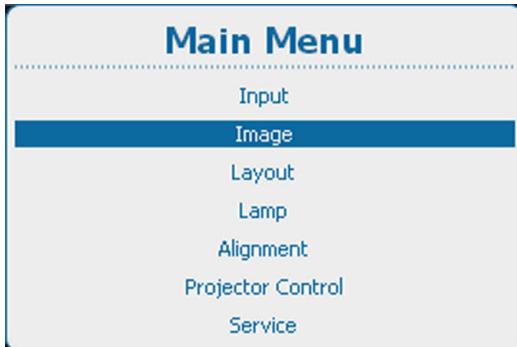


Image 9-75
Main menu, Image



Image 9-76
Image, image file services

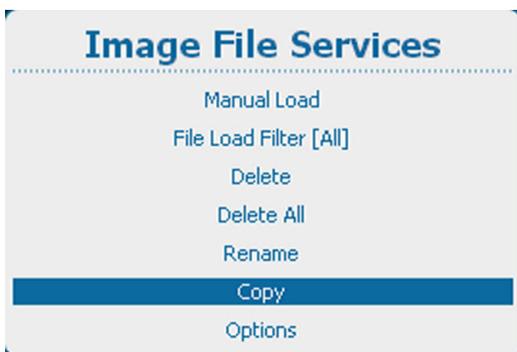


Image 9-77
Image file services, copy

2. Press **ENTER** to select.

The available custom files are displayed.

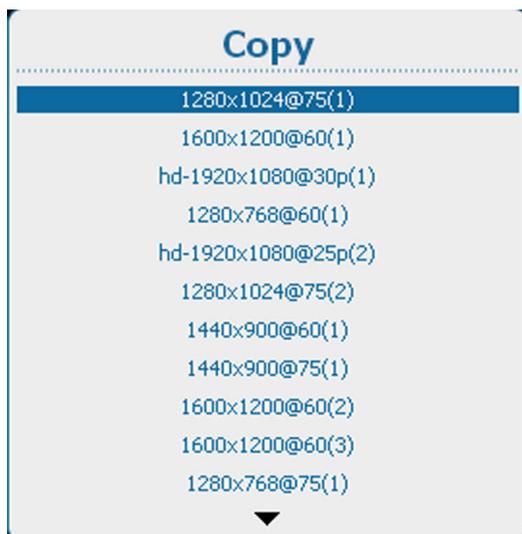


Image 9-78
Copy files, list

If no custom files are available, a message that no custom files are available is displayed.

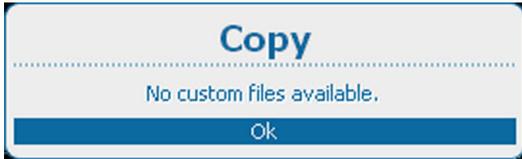


Image 9-79
No custom files

3. Use the ▲ or ▼ key to select the file to copy and press **ENTER**.

The copy window opens.



Image 9-80
Copy custom files

4. Use the ▲ or ▼ key to change the selected character.
Use the ◀ or ▶ key to select another character.

Note: *Digits can be entered with the digit keys on the remote control or the local keypad. When a digit is entered in that way, the next character will be selected automatically. Arrow key left (◀) has the backspace functionality.*

9.6.8 Image file service options, Load file

How to set

1. Press **Menu** to activate the menus and select *Image* → *Image File Services* → *Options* → *Load File*.

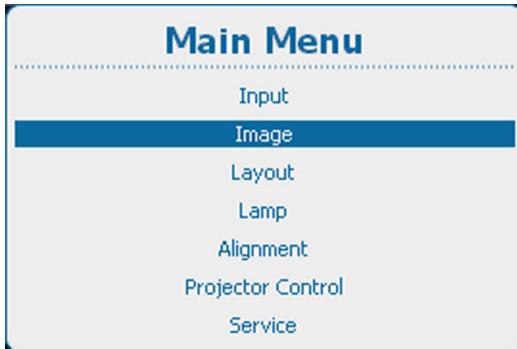


Image 9-81
Main menu, Image



Image 9-82
Image, image file services



Image 9-83
Image file services, Options



Image 9-84
File options, Load file

2. Press **ENTER** to toggle between *[Automatic]*, *[Manual]* or *[Custom only]*.
 - Automatic : correct file will be loaded automatically.
 - Manual : correct file should be loaded manually.
 - Custom only : correct file will be loaded automatically out of the available custom files.

9.6.9 Image file service options, Auto Picture Alignment

How to set

1. Press **Menu** to activate the menus and select *Image* → *Image File Services* → *Options* → *Auto Picture Alignment*.

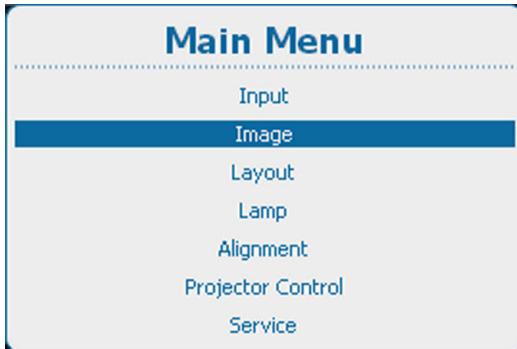


Image 9-85
Main menu, Image



Image 9-86
Image, image file services



Image 9-87
Image file services, Options



Image 9-88
File options, Auto Picture Alignment

2. Press **ENTER** to toggle between *[Off]*, *[Always]* or *[Load File]*.
 - Off : auto picture alignment deactivated.
 - Always : auto picture alignment is always activated.
 - Load file: when new file is loaded for the selected source.

9.7 Save custom settings

What can be done ?

The current custom settings can be saved to internal backup device in the same way as it would be done when the projector lamp was switched off.

When settings are changed when the lamp is off, a manual Save custom settings must be executed to save the changes.

When the message Save changes is displayed, newer switch off the projector.

How to save

1. Press **Menu** to activate the menus and select *Image* → *Save Custom Settings*

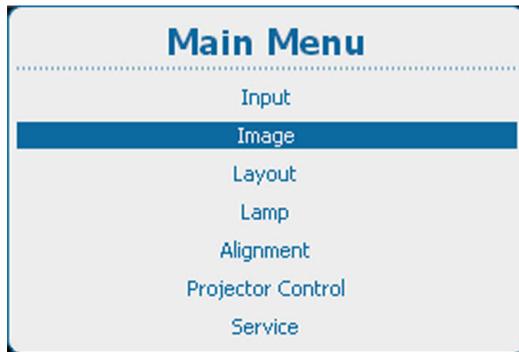


Image 9-89
Main menu, Image



Image 9-90
Image, save custom settings

2. Use the ▲ or ▼ key to select Yes and press **ENTER**.



Image 9-91
Save custom settings, question

10. LAYOUT

Overview

- Layout menu overview
- Introduction
- Main window
- PiP window
- Layout File Services
- Zoom - Focus - Shift windows

10.1 Layout menu overview

Overview table

| Level 1 | Level 2 | Level 3 | Level 4 |
|---------|----------------------|--|---|
| Layout | Main Window | Source Size Position | |
| | Pip Window | Pip Window [On], [Off] Source Size Position | |
| | Layout File Services | Load | Main Full Screen Native Resolution Pip Up Right Split Left Right Split Top Bottom Custom x |
| | | Rename Delete Delete all Copy/Save as | |
| | Zoom/Focus/Shift | Same zoom/focus/shift [yes], [no] | |

10.2 Introduction

Overview

Layout files determine the size and the position of the main and PiP window on the screen. Some pre-defined layouts are available in the projector but custom layouts can be created and saved for future use. A source number and lens settings can be associated with the layout settings.

10.3 Main window

Overview

- Main window source selection
- Main window size
- Main window position



When starting the Main window settings, the system will ask to create a custom layout

10.3.1 Main window source selection

How to select

1. Press **Menu** to activate the menus and select *Layout* → *Main window* → *Source*.

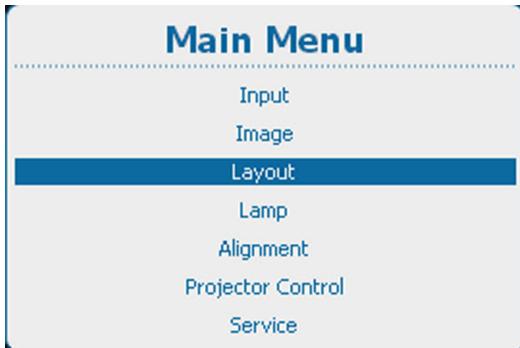


Image 10-1
Main menu, layout



Image 10-2
Layout, main window



Image 10-3
Main window, source

2. Press **ENTER** to select.

The *Select Source* window opens.

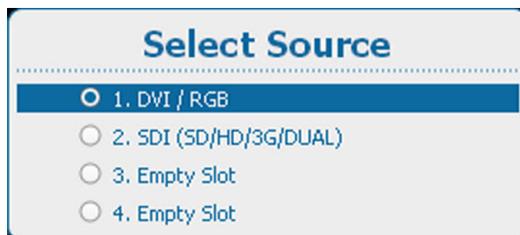


Image 10-4
Select source

3. Use the **▲** or **▼** key to select the desired source and press **ENTER**.

The radio button of the selected source is checked and the source is linked with the main window.

10.3.2 Main window size

What can be done?

The size of the main window can be adjusted until the desired window dimensions are reached.

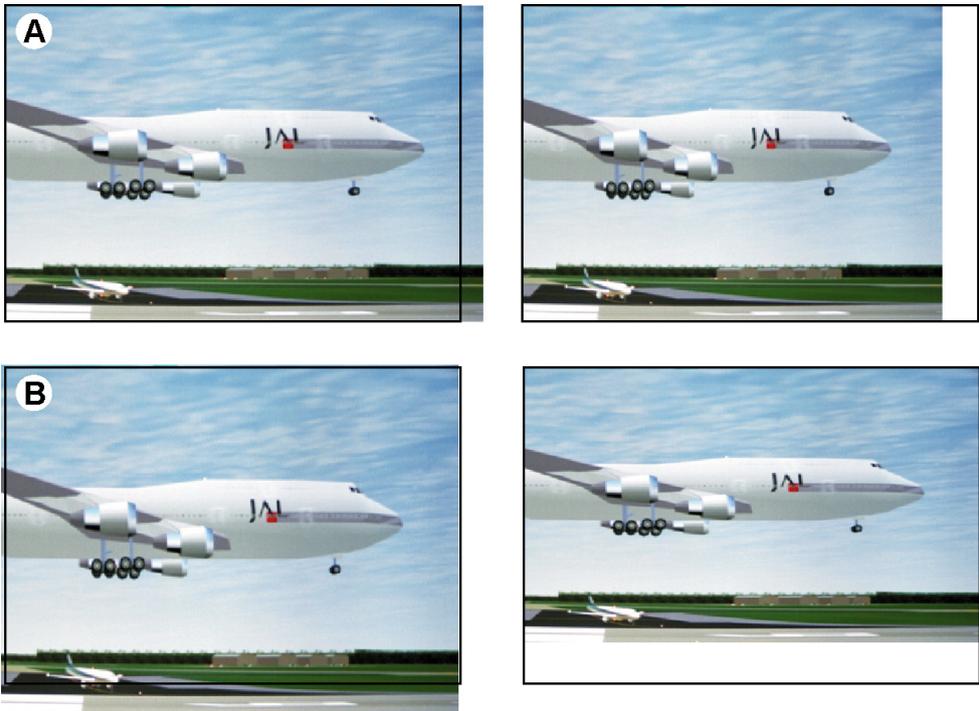


Image 10-5
Size adjustment main window

- A width adjustment
- B height adjustment

The size can be changed with respect to the original aspect ratio by checking the check box in front of *Lock*.

How to change the size

1. Press **Menu** to activate the menus and select *Layout* → *Main window* → *Size*.

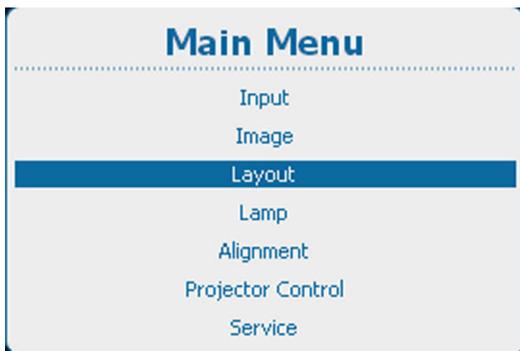


Image 10-6
Main menu, layout



Image 10-7
Layout, main window



Image 10-8
Main window, size

2. Press **ENTER** to select.

The *Size* window opens.



Image 10-9
Size window

3. To keep the current aspect ratio, press **ENTER** to check *Lock*.

Once *Lock* is checked, the width and the height will follow each other when changing one of the dimensions.

4. Use the ▲ or ▼ key to change the height and the ◀ or ▶ key to change the width.
5. When the desired size is reached, press **EXIT**.

A *Save Layout* window opens.



Image 10-10
Save layout

6. Use the ▲ or ▼ key to select *Yes* and press **ENTER** to save.
Select *No* if you want to quit without saving the current position.

10.3.3 Main window position

What can be done?

The main window can be repositioned on the screen. The upper left corner is the reference.

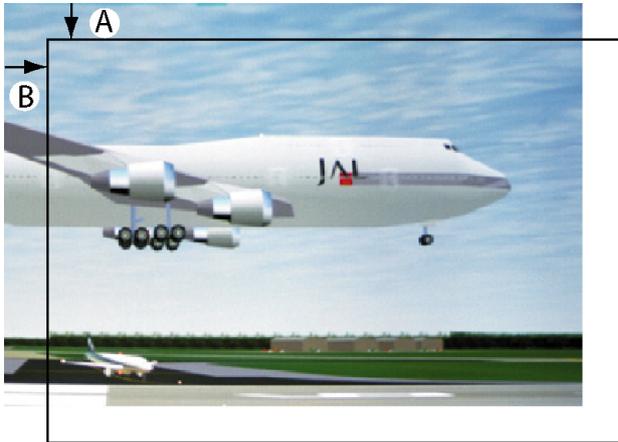


Image 10-11
Positioning the window

How to position

1. Press **Menu** to activate the menus and select *Layout* → *Main window* → *Position*.

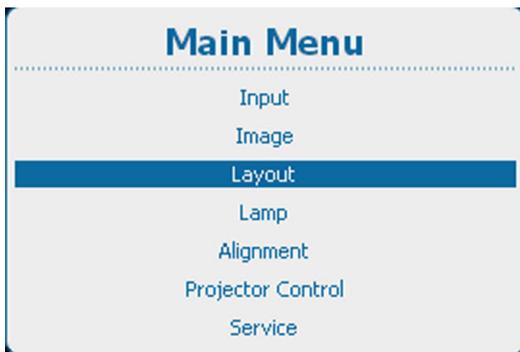


Image 10-12
Main menu, layout



Image 10-13
Layout, main window



Image 10-14
Main window, Position

2. Press **ENTER** to select.

The *Position* window opens.



Image 10-15
Position window

3. Use the **▲** or **▼** key to change the *Top* position and the **◀** or **▶** key to change the *Left* position.
4. When desired position is reached, press **EXIT**.

A *Save Layout* window opens.



Image 10-16
Save layout

5. Use the ▲ or ▼ key to select *Yes* and press **ENTER** to save.
Select *No* if you want to quit without saving the current position.

10.4 PiP window

Overview

- Introduction to PiP
- Picture in Picture activation
- PiP window, source selection
- PiP window, Size
- PiP window, position



When starting the PiP window settings, the system will ask to create a custom layout

10.4.1 Introduction to PiP



PiP

PiP stands for "Picture in Picture" and allows to display multiple windows containing each of them an image. The windows may be of the video or data type.

What are the different possibilities within the PiP mode ?

The input section of the projector allows a combination of different input signals which may be projected in the 2 windows, main and PiP. The PiP window can be placed anywhere, with any dimensions, on the screen by changing its position and its size.

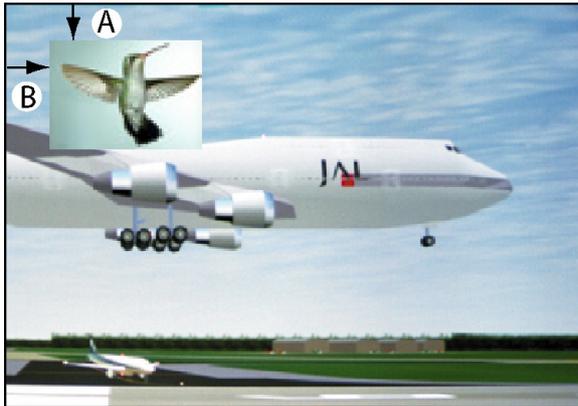


Image 10-17
Position of PiP

- A Top position
- B Left position

10.4.2 Picture in Picture activation

How to activate

1. Press **Menu** to activate the menus and select *Layout* → *PiP window* → *PiP window [On] / [Off]*.

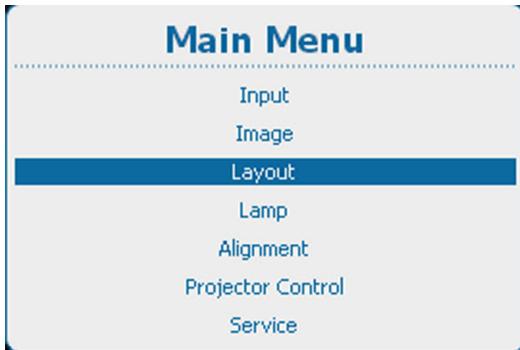


Image 10-18
Main menu, layout



Image 10-19
Layout, PiP Window

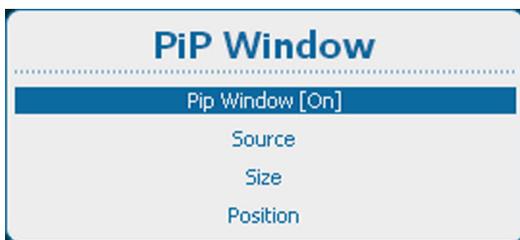


Image 10-20
PiP window, activation

2. Press **ENTER** to toggle between *[On]* or *[Off]*.

10.4.3 PiP window, source selection

How to select

1. Press **Menu** to activate the menus and select *Layout* → *PiP window* → *Source*.

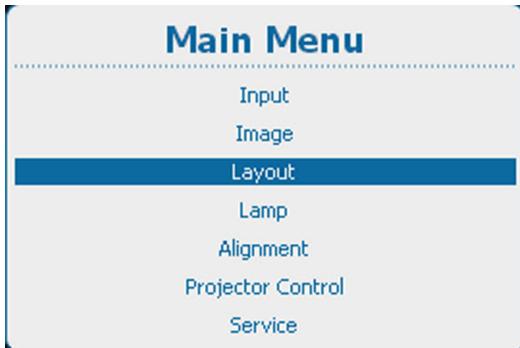


Image 10-21
Main menu, layout



Image 10-22
Layout, PiP Window



Image 10-23
PiP window, source selection

2. Press **ENTER** to select.

The *Select Source* window opens.

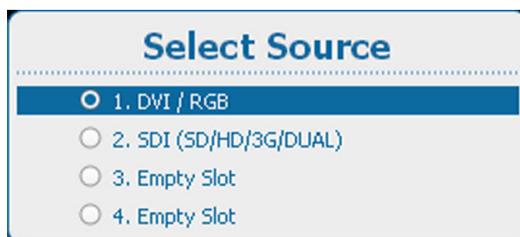


Image 10-24
Select source

3. Use the **▲** or **▼** key to select the desired source and press **ENTER**.

The radio button of the selected source is checked and the source is linked with the PiP window.



PiP source and main source can be the same input.

10.4.4 PiP window, Size

What can be done?

The width and height of the picture in picture window can be changed till the desired dimensions are obtained.

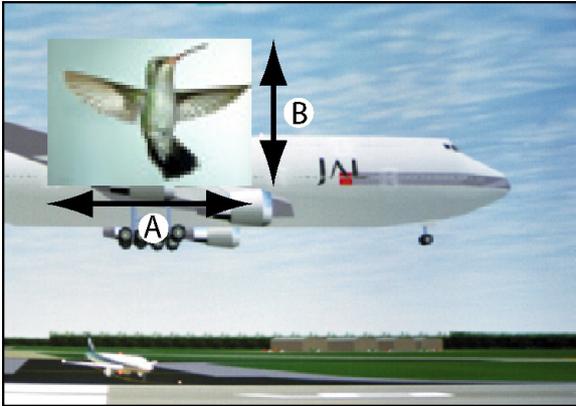


Image 10-25
Size PiP window

- A Width PiP window
- B Height PiP window

The size of the picture in picture window can be changed with respect to the original aspect ratio of the PiP image.

Remark: During adjustment of the window size, scaling artifacts can be visible.



Image 10-26
Size PiP window remark

How to resize

1. Press **Menu** to activate the menus and select *Layout* → *PiP window* → *Size*.

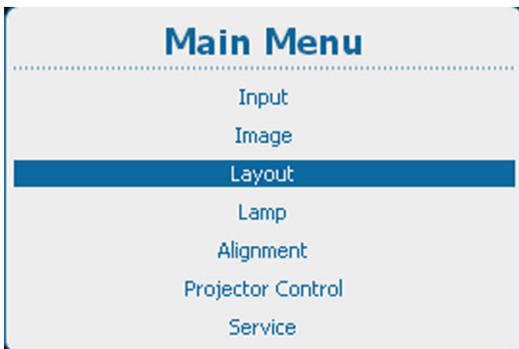


Image 10-27
Main menu, layout



Image 10-28
Layout, PiP Window



Image 10-29
PiP window, size

2. Press **ENTER** to select.

The *Size* window opens.



Image 10-30
PiP window, resize

3. To keep the current aspect ratio, press **ENTER** to check *Lock*.

Once *Lock* is checked, the width and the height will follow each other when changing one of the dimensions.

4. Use the ▲ or ▼ key to change the height and the ◀ or ▶ key to change the width.

5. When the desired size is reached, press **EXIT**.

A *Save Layout* window opens.



Image 10-31
Save layout

6. Use the ▲ or ▼ key to select *Yes* and press **ENTER** to save.
Select *No* if you want to quit without saving the current position.

10.4.5 PiP window, position

What can be done?

The picture in picture window can be positioned on any place on the display just by changing its start coordinates. The reference is the upper left corner of the window.

How to position

1. Press **Menu** to activate the menus and select *Layout* → *PiP window* → *Position*.

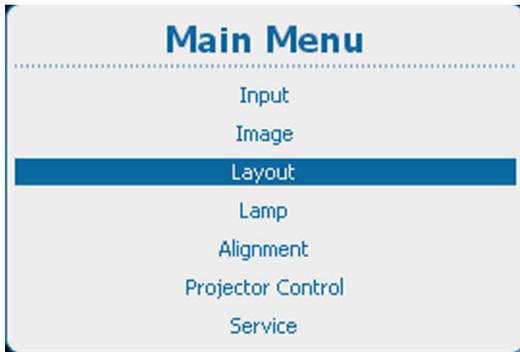


Image 10-32
Main menu, layout



Image 10-33
Layout, PiP window



Image 10-34
PiP window, position

2. Press **ENTER** to select.

The *Position* window opens.



Image 10-35
Position window

3. Use the **▲** or **▼** key to change the *Top* position and the **◀** or **▶** key to change the *Left* position.

4. When desired position is reached, press **EXIT**.

A *Save Layout* window opens.



Image 10-36
Save layout

5. Use the **▲** or **▼** key to select **Yes** and press **ENTER** to save.
Select **No** if you want to quit without saving the current position.

10.5 Layout File Services

Overview

- Load layout file
- Rename layout file
- Delete layout file
- Delete all layout files
- Copy or Save as layout file

10.5.1 Load layout file



When loading a layout that requires two sources, the PiP window On/Off setting will be switched to On.

How to load file

1. Press **Menu** to activate the menus and select *Layout* → *Layout File Services* → *Load*.

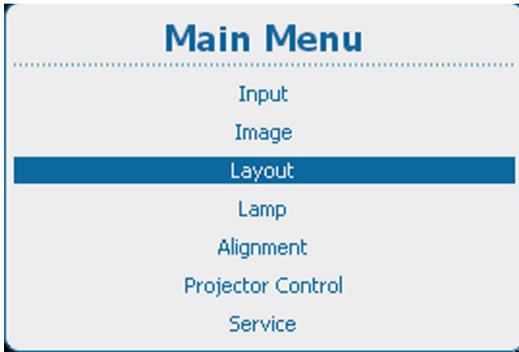


Image 10-37
Main menu, layout

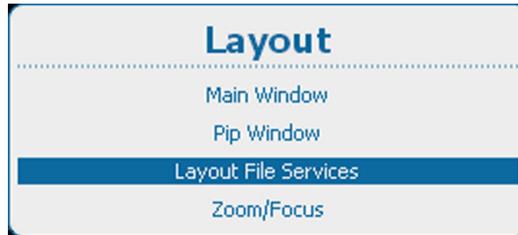


Image 10-38
Layout, layout file services



Image 10-39
Layout file services, load

2. Press **ENTER** to select.

The *Load layout* overview window opens.



Image 10-40
Load layout file list

3. Use the **▲** or **▼** key to select the desired file and press **ENTER** to activate.

The radio button in front of the selected file is checked.

10.5.2 Rename layout file



Only custom created layouts can be renamed.

How to rename

1. Press **Menu** to activate the menus and select *Layout* → *Layout File Services* → *Rename*.

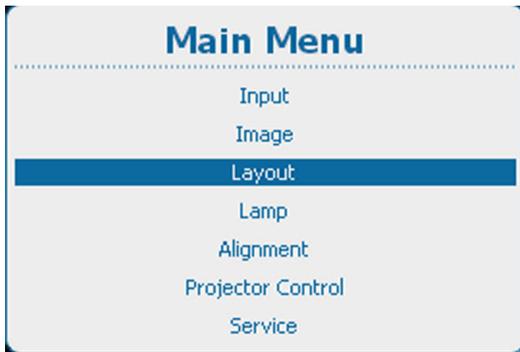


Image 10-41
Main menu, layout

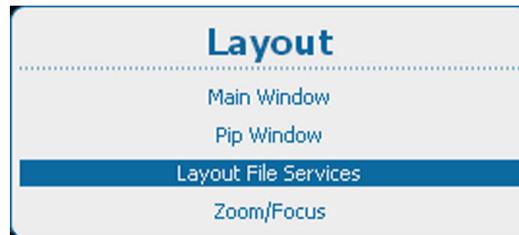


Image 10-42
Layout, layout file services



Image 10-43
Layout file services, rename

2. Press **ENTER** to select.

The *Rename layout* window opens with all available custom layouts.



Image 10-44

3. Use the **▲** or **▼** key to select the desired custom file and press **ENTER** to start the renaming.

The Rename window opens.



Image 10-45
Rename layout

4. Use the **▲** or **▼** key to change the selected character.
Use the **◀** or **▶** key to select another character.

Note: Digits can be entered with the digit keys on the remote control or the local keypad. When a digit is entered in that way, the next character will be selected automatically. Arrow key left (◀) has the backspace functionality.

10.5.3 Delete layout file



Only custom created layouts can be deleted. The current selected custom layout cannot be deleted.

How to delete

1. Press **Menu** to activate the menus and select *Layout* → *Layout File Services* → *Delete*.

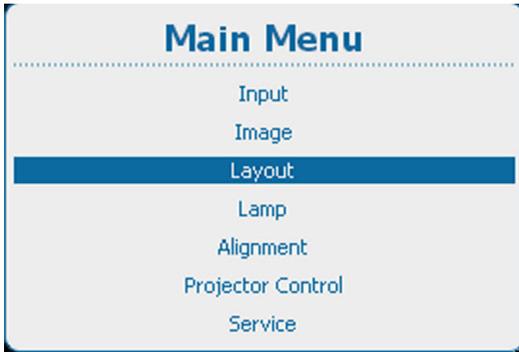


Image 10-46
Main menu, layout

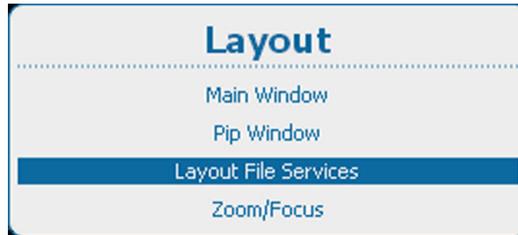


Image 10-47
Layout, layout file services



Image 10-48
Layout file services, delete

2. Press **ENTER** to select.

The *Delete layout* window opens with all available custom layouts.

If no custom layout files are available, a message that no custom layout files are available is displayed.



Image 10-49

3. Use the **▲** or **▼** key to select the desired custom file and press **ENTER** to delete.

A confirmation window is displayed.

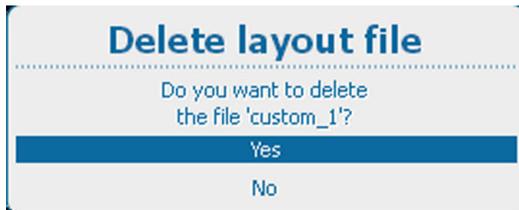


Image 10-50

4. Use the **▲** or **▼** key to select **Yes** and press **ENTER** to delete the custom layout. Select **No** if you want to quit without deleting the custom file.

10.5.4 Delete all layout files



Only custom layout files can be deleted. The current selected custom layout cannot be deleted.

How to delete

1. Press **Menu** to activate the menus and select *Layout* → *Layout File Services* → *Delete All*.

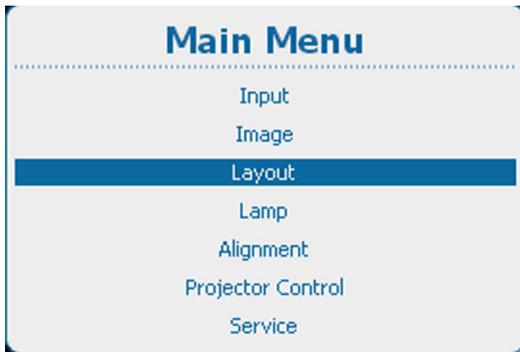


Image 10-51
Main menu, layout



Image 10-52
Layout, layout file services

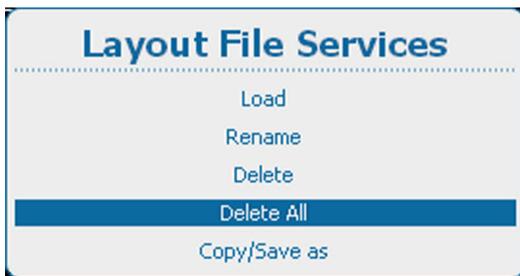


Image 10-53
Layout file services, delete all

2. Press **ENTER** to select.

The *Delete all* confirm window opens.

If no custom files are available, a message that no custom files are available is displayed.

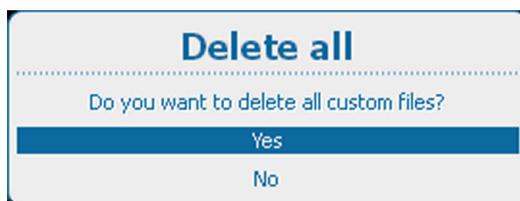


Image 10-54
Layout files, delete all confirmation

3. Use the **▲** or **▼** key to select Yes. Press **ENTER** to delete all layout files.

10.5.5 Copy or Save as layout file

What can be done?

The current loaded layout, custom layout or custom created layout, can be copied into a new file.

How to copy / save as

1. Press **Menu** to activate the menus and select *Layout* → *Layout File Services* → *Copy/Save as*.

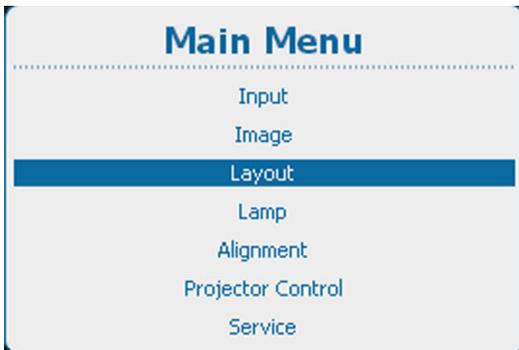


Image 10-55
Main menu, layout



Image 10-56
Layout, layout file services



Image 10-57
Layout file services, copy/save as

2. Press **ENTER** to select.

The *Copy layout file* window opens.

If no custom layout files are available, a message that no custom layout files are available is displayed.



Image 10-58
Copy layout

3. Use the **▲** or **▼** key to change the selected character.
Use the **◀** or **▶** key to select another character.

Note: *Digits can be entered with the digit keys on the remote control or the local keypad. When a digit is entered in that way, the next character will be selected automatically. Arrow key left (◀) has the backspace functionality.*

10.6 Zoom - Focus - Shift windows

What can be done ?

Different custom layouts can have different zoom/focus/shift settings, e.g. when using the projector on 2 different projector distances or two different screen sizes (same image but 2 custom layouts needed due to different zoom/focus/shift settings).

Adjust the lens settings for the different situations and save these settings each in a different custom layout.

When using only one screen to project the different layouts, the same lens settings can be used for all custom layouts.

When using different screens, different lens settings can be used (settings saved in the custom file will be used). To use different lens settings, it is important that the lens is calibrated so that the lens always returns to the saved position when opening a custom layout.

Switching from a custom file (layout) to a standard file (layout) will not change the current lens settings.

How to set the zoom - focus setting

1. Press **Menu** to activate the menus and select *Layout* → *Zoom / Focus / Shift*.

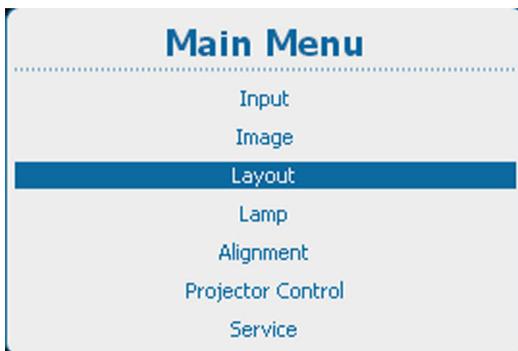


Image 10-59
Main menu, layout

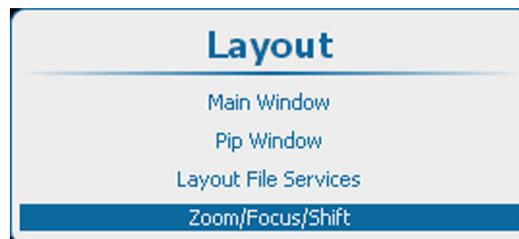


Image 10-60
Layout, Zoom/Focus/Shift

2. Press **ENTER** to select.

The *Zoom/Focus/Shift* window opens.

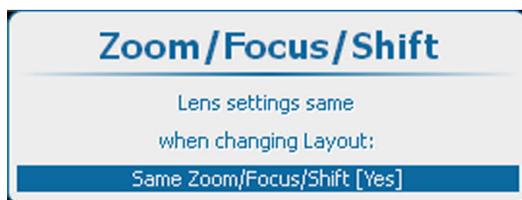


Image 10-61
Zoom/focus/shift setting

3. Press **ENTER** to toggle Same Zoom/Focus/Shift between *[Yes]* or *[No]*.

[Yes] = each layout will use the same zoom/focus/shift settings. The zoom/focus/shift settings of the previous selected layout will be applied to the next selected layouts.

[No] = each layout will use its own zoom/focus/shift settings. Lens should be calibrated, when using this setting.

4. If *[No]* is selected, the calibrate lens menu opens.

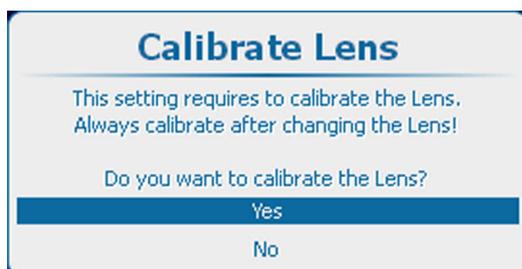


Image 10-62
Lens calibration

Before different zoom/focus/shift setting can be used, the lens should be calibrated. When a lens change has taken place, always calibrate the lens before using this setting.

5. If you have to calibrate the lens, select **Yes** and press **ENTER** to start the calibration.

During the calibration, a message is displayed. This message disappears when the calibration is finished.



Image 10-63
Lens calibration message

11. LAMP

Overview

- Lamp menu overview
- Lamp power mode
- Lamp power
- Auto dimming when on Pause
- Auto dimming when No Signal
- Auto dimming when Over-temperature
- CLO mode (Constant light output mode)
- CLO targets
- LPS power
- Lamp identification
- Z-axis adjustment

11.1 Lamp menu overview

Overview table

| Level 1 | Level 2 | Level 3 |
|---------|----------------|--|
| Lamp | | |
| | Power | Power mode Power Auto dimming when pause Auto dimming when No Signal Auto dimming when Overtemperature CLO mode CLO targets LPS Power |
| | Identification | |
| | Z-axis | Light output |

11.2 Lamp power mode

What can be done?

The lamp power mode can be switched between **Normal** and **Economic**. When playing in Economic mode, the lamp life time will be higher than in normal mode.

The counter of the lamp life time counts equal for normal or economic mode but the customer will see that the ageing of the lamp is lower in economic mode.

Normal : maximum allowed power is fed to the lamp. Maximum light output is reached in this way.

Economic : a reduced wattage is fed to the lamp. Reduced light output but a longer life time for the lamp.

The lamp power mode setting is linked with the CLO mode setting. When CLO mode settings is set to *On*, the lamp power mode setting is ignored and projector will play in CLO mode. Once the CLO mode setting is switched to *Off*, the installed lamp power mode setting will be used.

How to switch

1. Press **Menu** to activate the menus and select *Lamp* → *Power* → *Mode*.

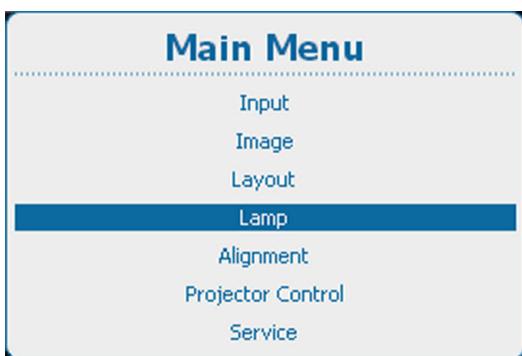


Image 11-1
Main menu, lamp



Image 11-2
Lamp, power

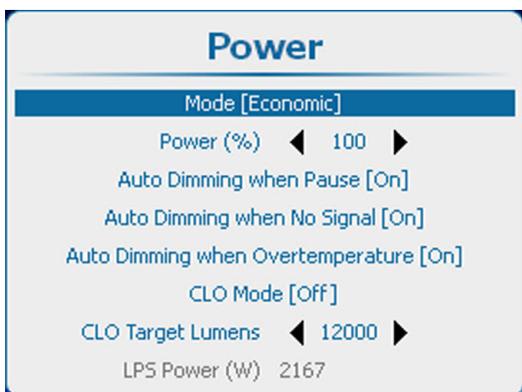


Image 11-3

2. Press **ENTER** to toggle between [*Normal*] and [*Economic*].

11.3 Lamp power

What can be done?

Within a certain power mode, the light output of the lamp can be reduced by reducing the lamp power

How to reduce the power

1. Press **Menu** to activate the menus and select *Lamp* → *Power* → *Power*.

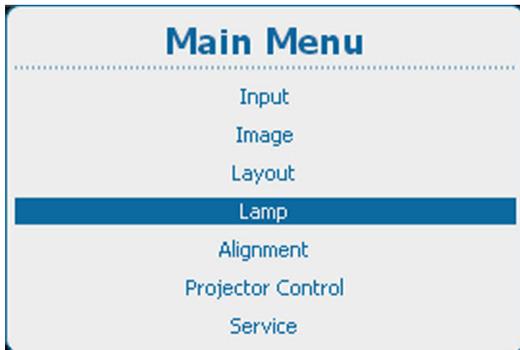


Image 11-4
Main menu, lamp



Image 11-5
Lamp, power

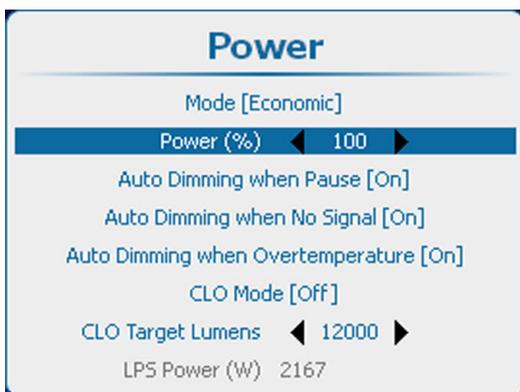


Image 11-6
Lamp power adjustment

2. Use the ◀ or ▶ key to change the power value.
The value can be changed between 75 and 100%

11.4 Auto dimming when on Pause

About auto dimming when on pause

When the projector is switched to pause, the shutter is closed but the lamp is still running on full power. When auto dimming on pause is activated, then the lamp power will be reduced from its current value to its minimum value. When returning out of pause the lamp power is restored to its previous value.

How to set up

1. Press **Menu** to activate the menus and select *Lamp* → *Power* → *Auto Dimming when Pause*.

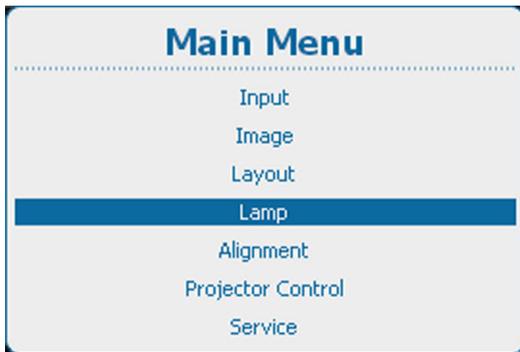


Image 11-7
Main menu, lamp

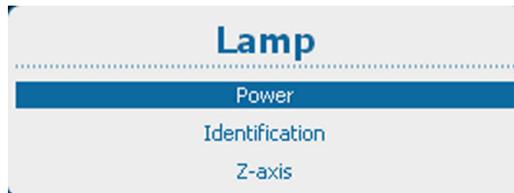


Image 11-8
Lamp, power

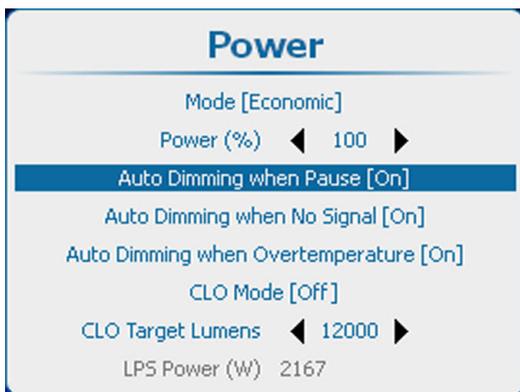


Image 11-9
Auto dimming when Pause

2. Press **ENTER** to toggle between *[On]* or *[Off]*.
 [On] : when switched to pause, lamp power will be reduced.
 [Off] : when switched to pause, power remains on its original value.

11.5 Auto dimming when No Signal

About auto dimming

When no signal is detected on the selected input the lamp power will be reduced from the current value to its minimum value. When the input signal is re-detected, the lamp power is restored to its original value.

This function is a duplicate of the Auto dimming in the Input menu.

How to set up

1. Press **Menu** to activate the menus and select *Lamp* → *Power* → *Auto Dimming No Signal*.

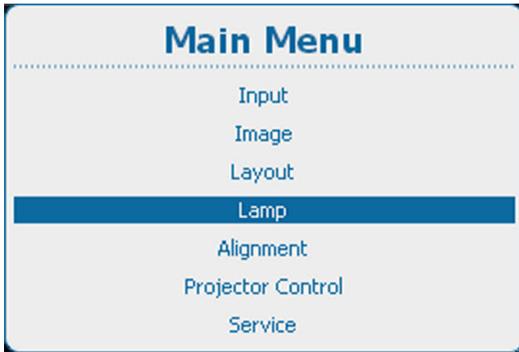


Image 11-10
Main menu, lamp



Image 11-11
Lamp, power

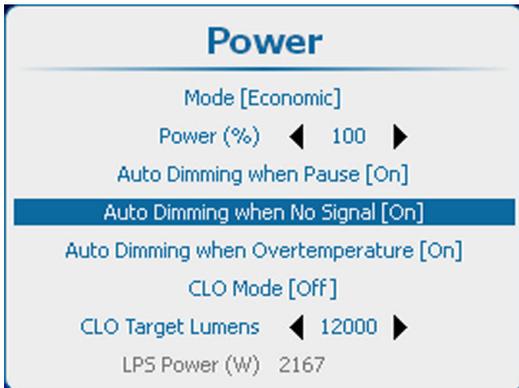


Image 11-12
Auto dimming no signal

2. Press **ENTER** to toggle between *[On]* or *[Off]*.
[On] : when no signal, auto dimming is started.
[Off] : when no signal, no auto dimming is started.

11.6 Auto dimming when Over-temperature

What can happen?

When an over-temperature is detected, the projector starts dimming the lamp so that the projector can cool down.

How to set up

1. Press **Menu** to activate the menus and select *Lamp* → *Power* → *Auto Dimming Overtemperature*.

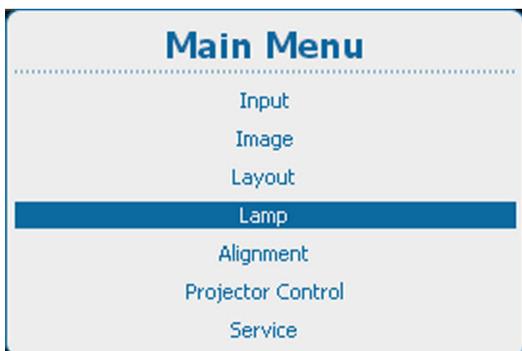


Image 11-13
Main menu, lamp



Image 11-14
Lamp, power

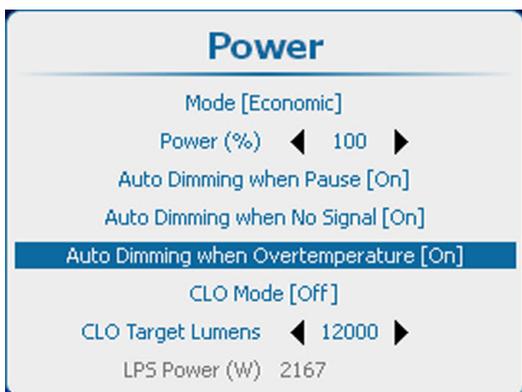


Image 11-15
Auto dimming over-temperature

2. Press **ENTER** to toggle between *[On]* or *[Off]*.
 [On] : when temperature is to high, auto dimming is started.
 [Off] : when temperature is to high, no auto dimming is started.

11.7 CLO mode (Constant light output mode)

What can be done?

Constant Light Output allows to force a constant light output (set in the *CLO Target lumens* item) of the projector over a certain period. This will eliminate uncontrolled light output drop caused by natural aging of the lamp. The light output is checked every 5 minutes, if the target is not met, the lamp power is adjusted.

Setting CLO off means that the lamp will operate at constant power (no power adaptation to meet constant light output).

In the illustration below, a normal light output curve is shown over the first 1000 hours, image 11-16. By using CLO and setting the target to 60% of the maximum light output, one will be able to operate during approximately 500 hours with a constant light output, image 11-17.

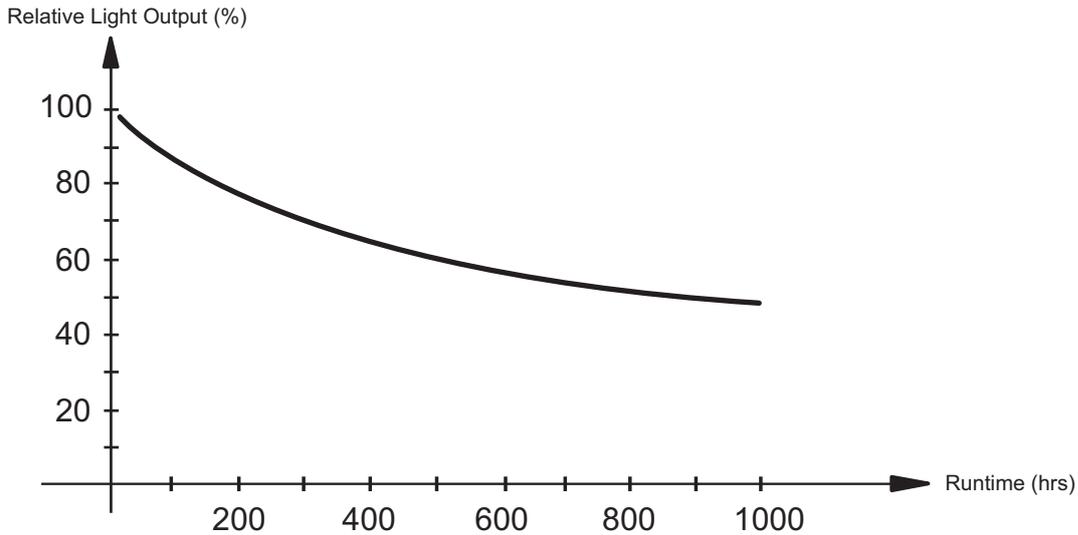


Image 11-16

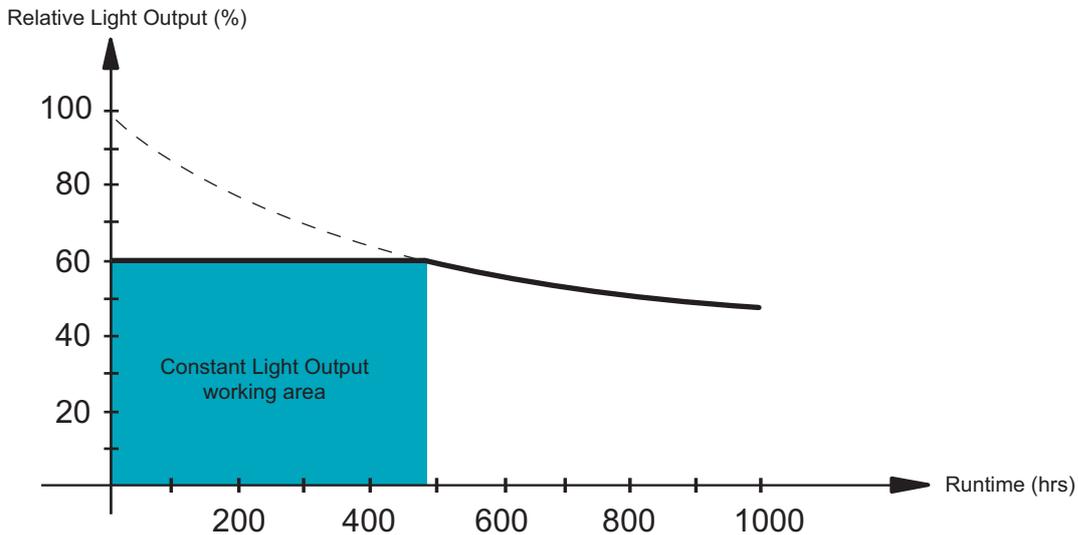


Image 11-17



CLO mode setting On overrules the lamp power mode setting. Projector will always play in CLO mode using the CLO target.

How to switch CLO mode

1. Press **Menu** to activate the menus and select *Lamp* → *Power* → *CLO mode*.

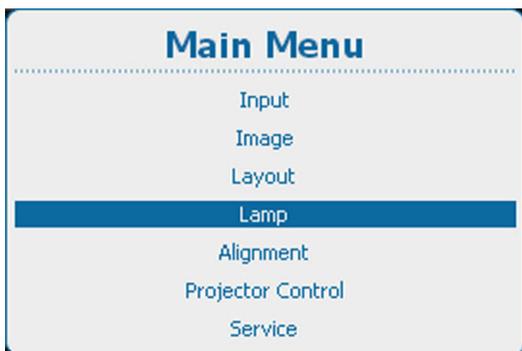


Image 11-18
Main menu, lamp



Image 11-19
Lamp, power

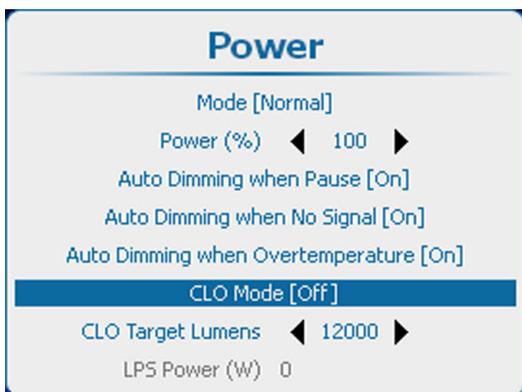


Image 11-20
Power, CLO mode

2. Press **ENTER** to toggle between *[On]* or *[Off]*.

11.8 CLO targets

What must be done?

The light output target can be set. This value will force the projector to produce the target lumens when the CLO mode is set to *On*.

How to set the target

1. Press **Menu** to activate the menus and select *Lamp* → *Power* → *CLO mode*.

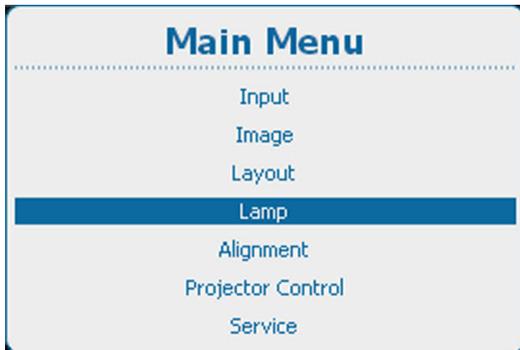


Image 11-21
Main menu, lamp



Image 11-22
Lamp, power

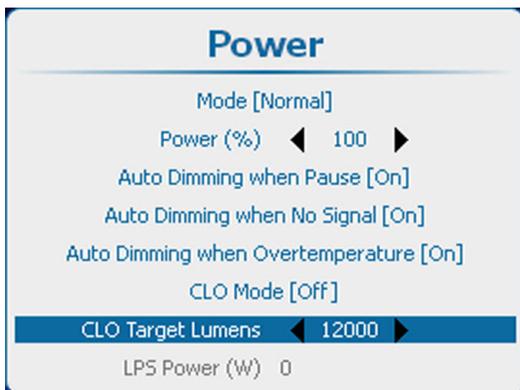


Image 11-23
CLO Target lumens setup

2. Use the ◀ or ▶ key to change the CLO target lumens.

11.9 LPS power

What is indicated ?

The current LPS power in watt is indicated as information.

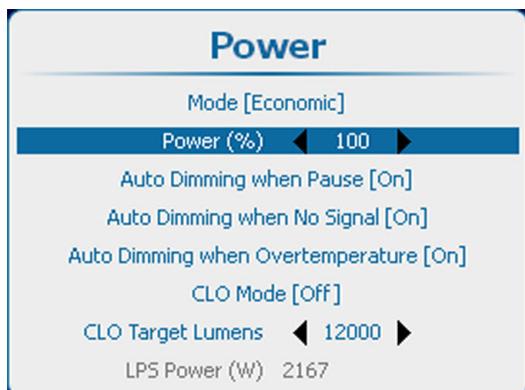


Image 11-24
LPS power

11.10 Lamp identification

About

The lamp identification menu gives an overview of the most important parameters of the used lamp.

These parameters are:

- Serial number of the lamp
- Article number of the lamp
- Run time since first start up of the lamp
- Remaining run time for a safe operation of the lamp
- Number of strikes since the first start up of the lamp
- Software version



These parameters are useful in case of a service request.

How to display

1. Press **Menu** to activate the menus and select *Lamp* → *Identification*.

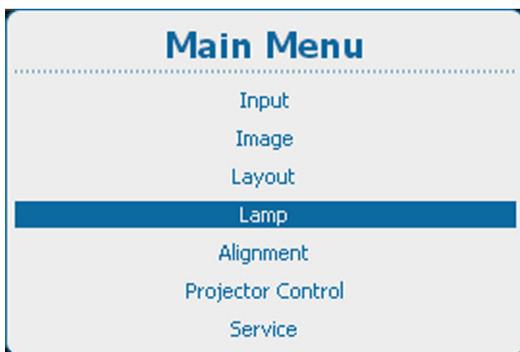


Image 11-25
Main menu, lamp

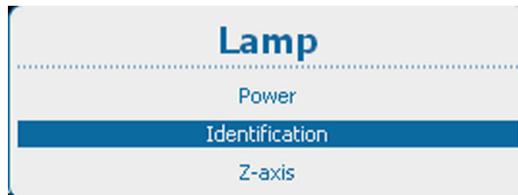


Image 11-26
Lamp, identification

2. Press **ENTER** to select.



Image 11-27
Lamp identification

11.11 Z-axis adjustment

What can be done?

The Z-Axis menu item gives the current light output of the projector (in percentage). This light output indication can be used to readjust the lamp position in the lamp casing (also called Z-axis adjustment of the lamp). With higher run times, the light output of the lamp will decrease, which results in a lower light output on the screen. This light output decrease can be compensated by readjusting the position of the lamp. This realignment has to be done by a qualified service technician.

How to display the light output

1. Press **Menu** to activate the menus and select *Lamp* → *Z-axis*.

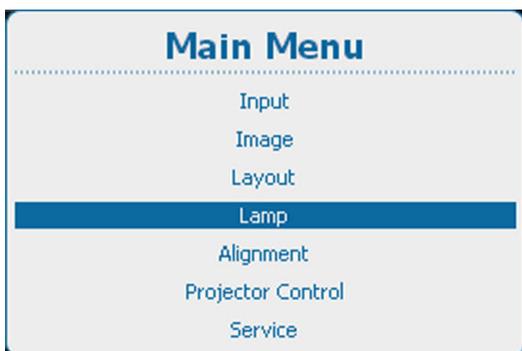


Image 11-28
Main menu, lamp

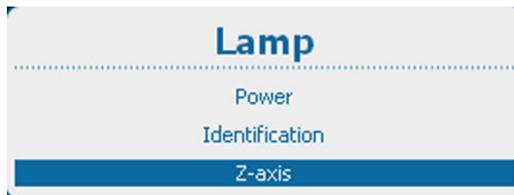


Image 11-29
Lamp, Z-axis

2. Press **ENTER** to display the current light output.



Image 11-30
Current light output

12. ALIGNMENT

Overview

- Alignment menu overview
- Orientation
- Lens adjustment, zoom - focus
- Lens adjustment, shift
- Lens adjustment, mid position
- Home lens at startup
- Calibrate lens
- Warping
- Blanking adjustment
- Contrast-Intensity
- Gamma
- Internal patterns
- Color space
- Scenergix

12.1 Alignment menu overview

Overview table

| Level 1 | Level 2 | Level 3 | |
|--------------------|----------------------|----------------------|----------------------|
| Alignment | Orientation | Front / Table | |
| | | Front / Ceiling | |
| | | Rear / Table | |
| | | Rear / Ceiling | |
| | | Auto Front | |
| | | Auto Rear | |
| | Lens | Zoom / Focus | Zoom / Focus |
| | | | Shift |
| | | | Mid Position |
| | | | Home lens at startup |
| | | | Calibrate lens |
| | Warping | Status | Status |
| | | | Rotation |
| | | | Keystone |
| | | | Pin/Barrel |
| | | | 4 corners |
| | | | Warp file service |
| | | | Reset |
| | Blanking | Top | Top |
| Bottom | | | |
| Left | | | |
| Right | | | |
| Contrast/Intensity | Contrast enhancement | Contrast enhancement | |
| | | Intensity | |
| Gamma | | | |
| Internal Patterns | | | |
| Color Space | Status | Status | |
| | | Projector | |
| | | EBU | |
| | | SMPTE | |
| | | Custom | |
| ScenergiX | Status | Status | |
| | | White level | |
| | | Black level | |
| | | ScenergiX pattern | |
| | | Adjust lines | |
| | | Reset | |

12.2 Orientation

What can be done?

The way of physical installation of the projector can be defined to the projector.

The following installation are possible:

- front/table
- front/ceiling
- rear/table
- rear/ceiling
- auto front : automatic front, projector detects itself if it is ceiling or table mounted and projects always a readable image.
- auto rear : automatic rear, projector detects itself if it is ceiling or table mounted and projects always a readable image.

How to set the correct orientation

1. Press **Menu** to activate the menus and select *Alignment* → *Orientation*.

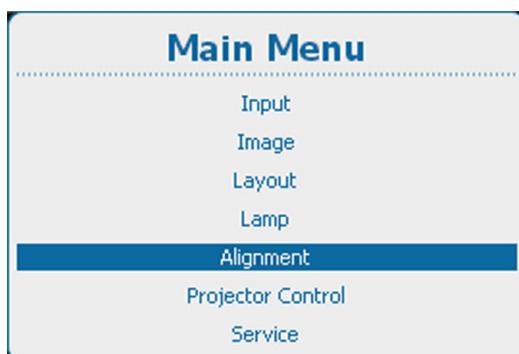


Image 12-1
Main menu, alignment

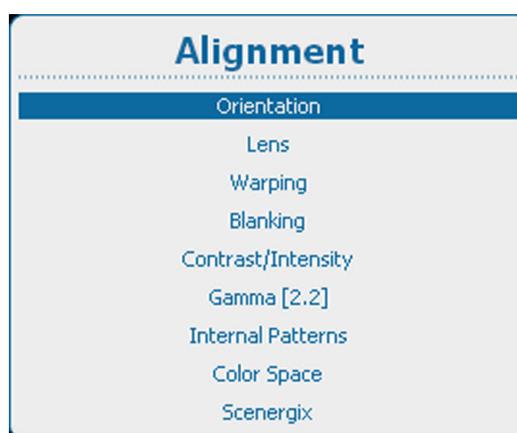


Image 12-2
Alignment, orientation

2. Use the **▲** or **▼** key to select the desired orientation and press **ENTER** to activate.



Image 12-3
Orientation list

12.3 Lens adjustment, zoom - focus

Zoom/Focus adjustment

1. Press **Menu** to activate the menus and select *Alignment* → *Lens*.

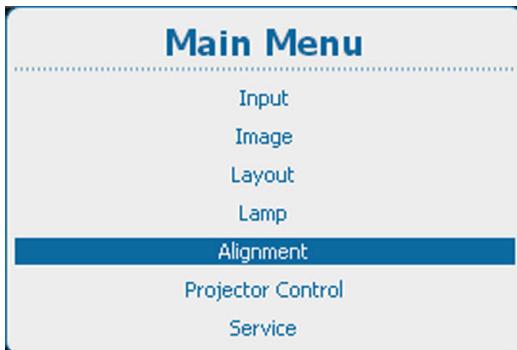


Image 12-4
Main menu, alignment

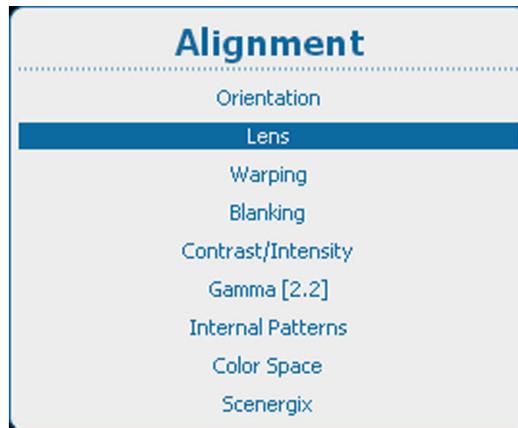


Image 12-5
Alignment, lens

2. Use the ▲ or ▼ key to select *zoom/focus* and press **ENTER** to activate.



Image 12-6
Lens, Zoom/Focus

3. Use the ▲ or ▼ key to zoom the lens.
Use the ◀ or ▶ key to focus the lens.
Press **ENTER** to switch to Lens shift adjustment.

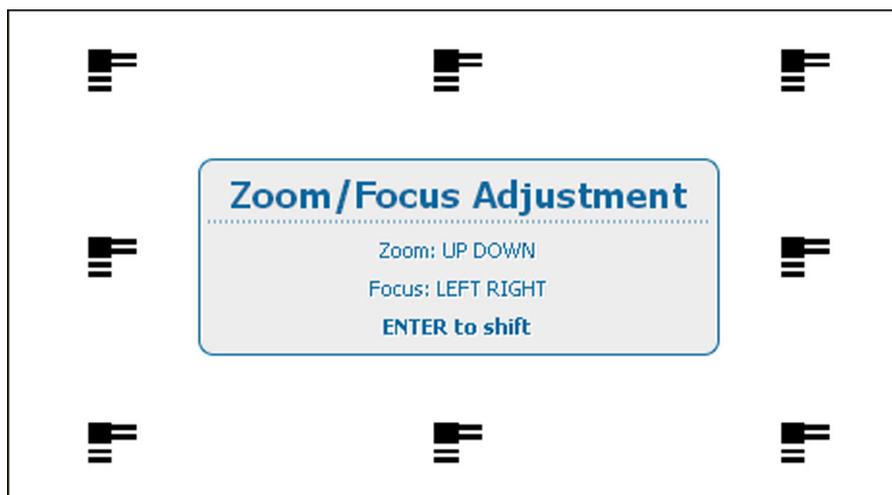


Image 12-7
Zoom/Focus adjustment

12.4 Lens adjustment, shift

How to shift lens

1. Press **Menu** to activate the menus and select *Alignment* → *Lens*.

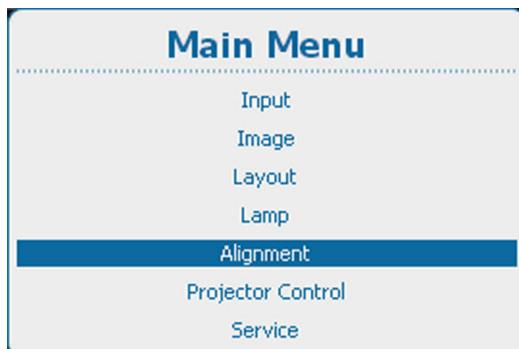


Image 12-8
Main menu, alignment

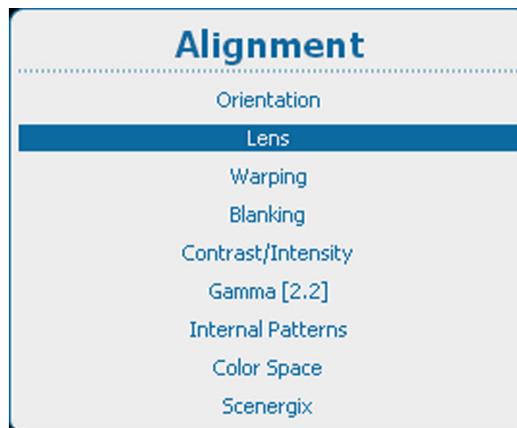


Image 12-9
Alignment, lens

2. Use the ▲ or ▼ key to select *Shift* and press **ENTER** to activate.

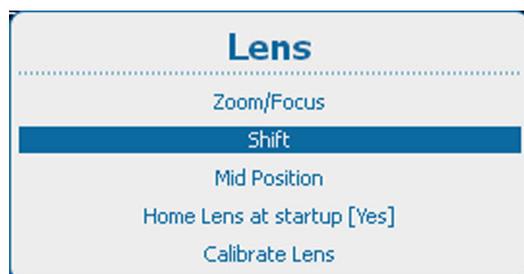


Image 12-10
Lens, shift

3. Use the ▲ or ▼ key to shift the lens in vertical direction.
Use the ◀ or ▶ key to shift the lens in horizontal direction.
Press **ENTER** to switch to Zoom/Focus adjustment.

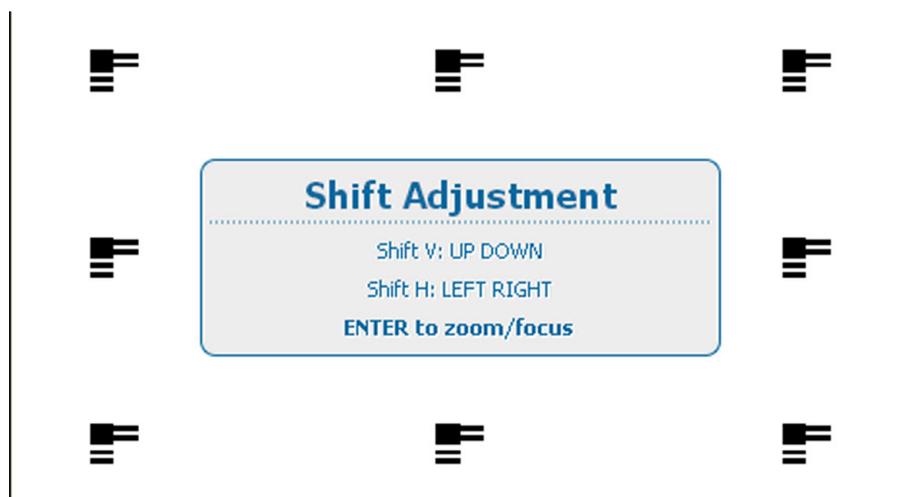


Image 12-11
Shift adjustment

12.5 Lens adjustment, mid position

How to return to mid position

1. Press **Menu** to activate the menus and select *Alignment* → *Lens*.

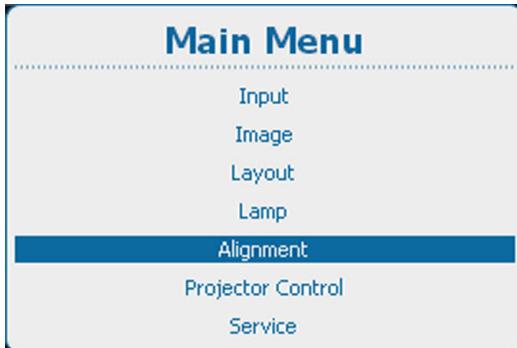


Image 12-12
Main menu, alignment

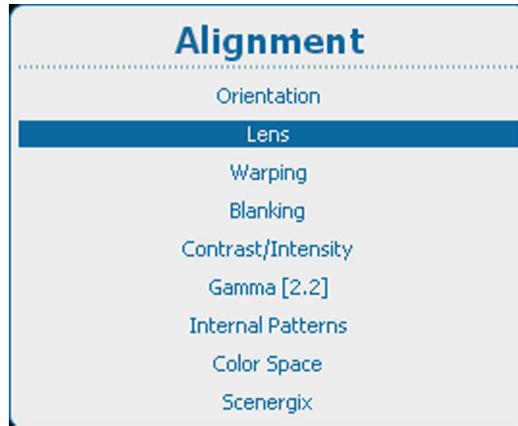


Image 12-13
Alignment, lens

2. Use the ▲ or ▼ key to select *Mid Position* and press **ENTER** to activate.

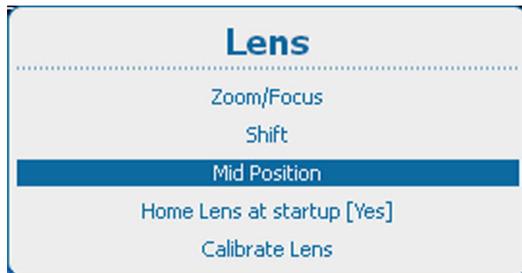


Image 12-14
Lens, mid position

Lens will be shifted horizontally and vertically to its mid position.

12.6 Home lens at startup

About home lens

Each time the projector is started, a homing procedure can be executed so that the projector exactly knows the lens position.

How to home

1. Press **Menu** to activate the menus and select *Alignment* → *Lens*.

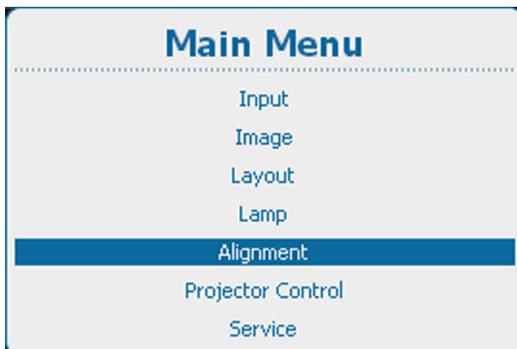


Image 12-15
Main menu, alignment

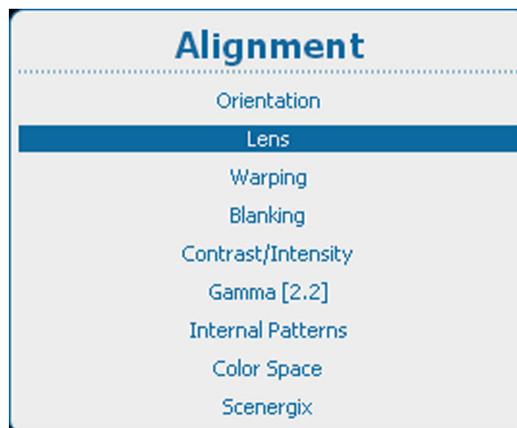


Image 12-16
Alignment, lens

2. Use the ▲ or ▼ key to select *Home lens at startup* and press **ENTER** to toggle between *[on]* and *[off]*.



Image 12-17
Home lens at startup

12.7 Calibrate lens



Lens calibration is a time consuming operation.

How to calibrate

1. Press **Menu** to activate the menus and select *Alignment* → *Lens*.

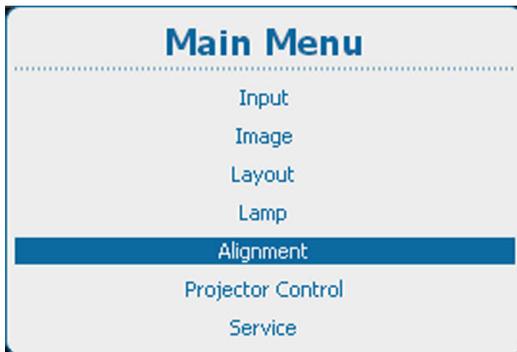


Image 12-18
Main menu, alignment

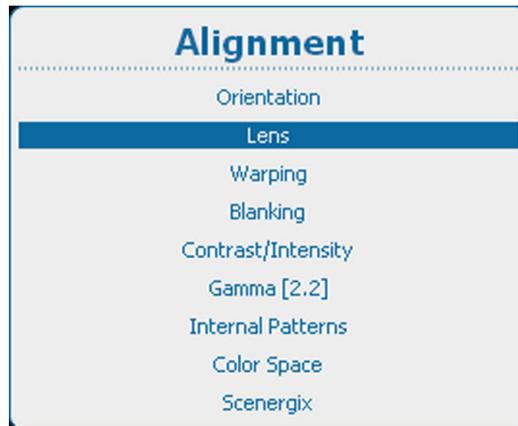


Image 12-19
Alignment, lens

2. Use the **▲** or **▼** key to select *Calibrate lens* and press **ENTER** to activate.



Image 12-20
Calibrate lens

A confirmation window opens. Select **Yes** to start the calibration procedure.

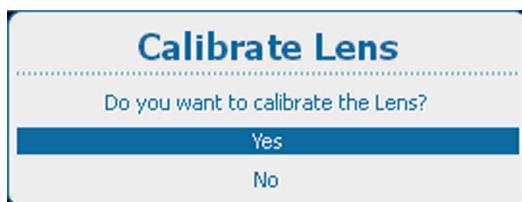


Image 12-21
Calibrate lens confirmation

12.8 Warping



Not all models are equipped with a warping unit. For these models, the warping unit is optional.

Overview

- About warping
- Warping status
- Rotation
- Keystone
- Pin-Barrel correction
- 4 corners adjustment
- Warp file service

12.8.1 About warping

Overview

Image warping is the process of digitally manipulating an image to compensate for the distortion of the screen. Consequently, it can also be used to generate an image with irregular shape.

While an image can be transformed in various ways, pure warping doesn't affect the colors.

Some examples of warped images, using the warp geometry settings:



Image 12-22
Example 1 : distorted image



Image 12-23
Example 2 : distorted image

12.8.2 Warping status

About warp status

The status of warping determines how warping can be done.

Off No warping possible.

Manual Warping can be manually adjusted.

File Warping is done by uploading a file which contains the warp settings.

How to set the warp status

1. Press **Menu** to activate the menus and select *Alignment* → *Warping*.

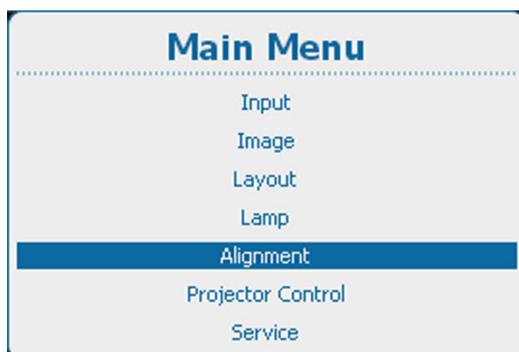


Image 12-24
Main menu, alignment

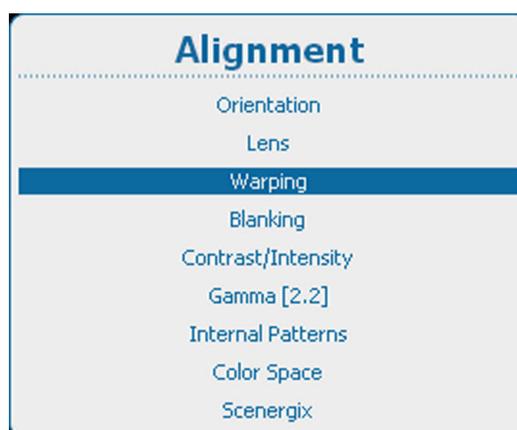


Image 12-25
Alignment, warping



Image 12-26
Warping, status

2. Press **ENTER** to toggle between *[Off]*, *[Manual]* or *[File]*.

12.8.3 Rotation

What can be done ?

The image can be rotated clockwise or counter clockwise until the desired position is reached.

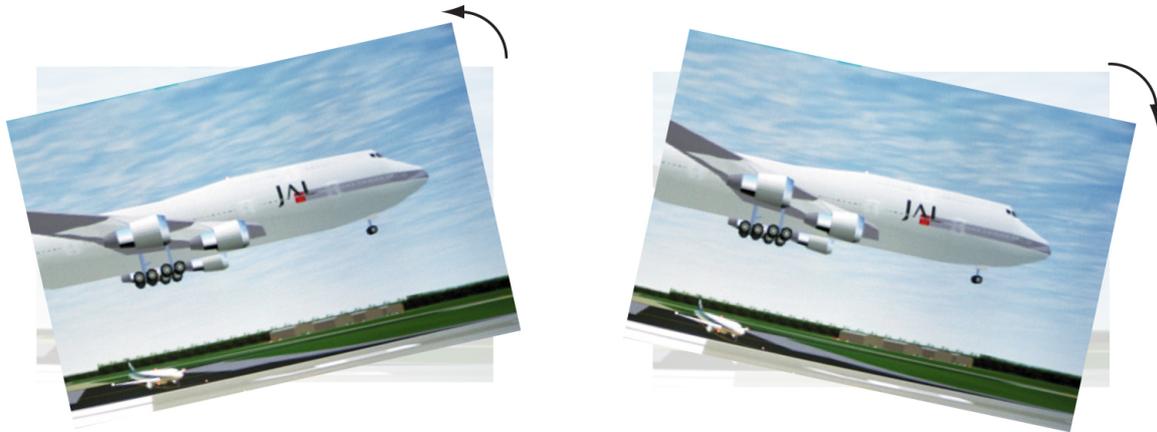


Image 12-27
Rotation

How to start a rotation

1. Press **Menu** to activate the menus and select *Alignment* → *Warping* .

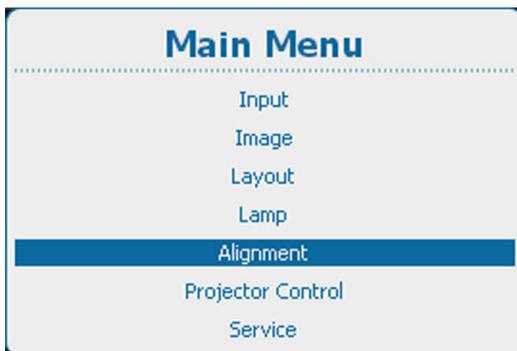


Image 12-28
Main menu, alignment

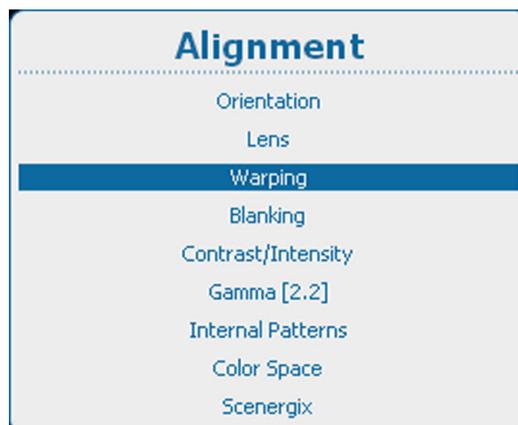


Image 12-29
Alignment, warping

2. Press **ENTER** to open the *Warping* menu.

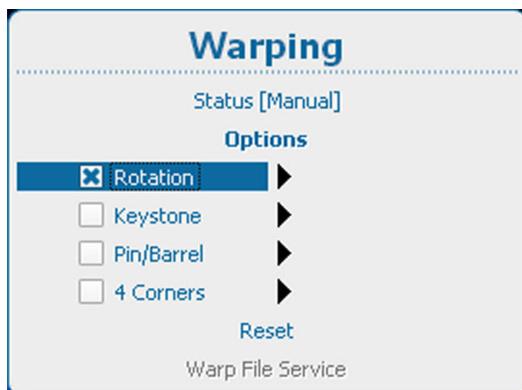


Image 12-30
Warping, rotation

3. Use the **▲** or **▼** key to select *Rotation*.
4. Press **ENTER** to check the *Rotation* check box.
5. Use the **▶** key to open the rotation adjustment.



Image 12-31
Rotation

6. Use the ◀ or ▶ key to change the value of the selected adjustment or enter the value with the numeric keys.

12.8.4 Keystone

What can be done ?

Horizontal and vertical keystone adjustment of the image is used to align the image when the device is mounted at a non standard projection angle.



Image 12-32
Keystone adjustment

How to adjust

1. Press **Menu** to activate the menus and select *Alignment* → *Warping* .

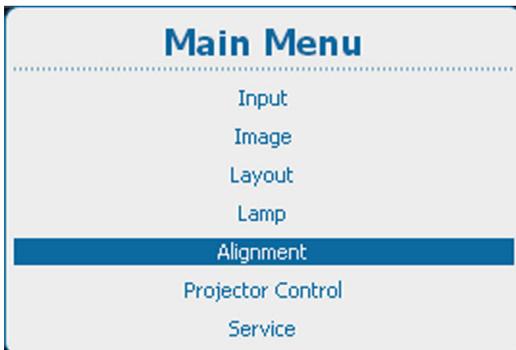


Image 12-33
Main menu, alignment

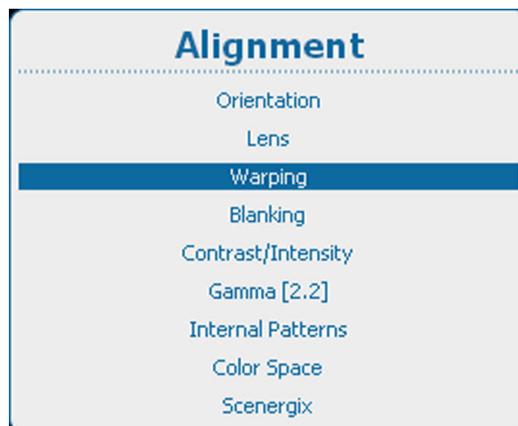


Image 12-34
Alignment, warping

2. Press **ENTER** to open the *Warping* menu.



Image 12-35
Warping, keystone

3. Use the ▲ or ▼ key to select *Keystone*.
4. Press **ENTER** to check the *Keystone* check box.
5. Use the ► key to open the keystone adjustments.



Image 12-36
Warping, keystone adjustment

6. Use the ▲ or ▼ key to select *Horizontal Keystone* or *Vertical Keystone*.
Use the ◀ or ▶ key to adjust the value of the selected keystone or enter the desired value with the numeric keys.
Note: Press **ENTER** to open the bar scale adjustment and use the ▲ or ▼ key or use the ◀ or ▶ key to adjust the horizontal or vertical keystone.

12.8.5 Pin-Barrel correction

What can be done ?

Barrel and pincushion distortions can be adjusted.



Image 12-37
Barrel and pincushion correction



- A Barrel
- B Pincushion

How to adjust

1. Press **Menu** to activate the menus and select *Alignment* → *Warping* .

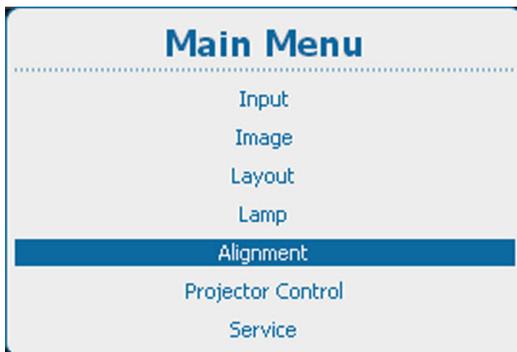


Image 12-38
Main menu, alignment

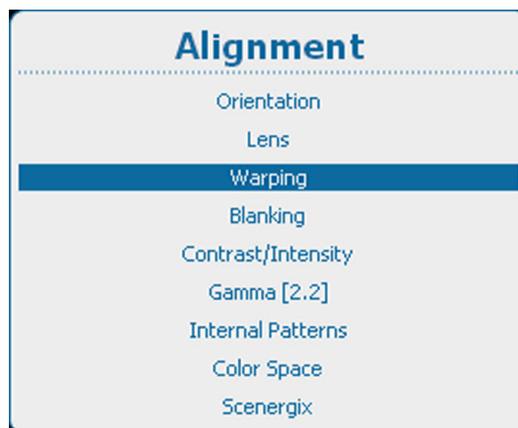


Image 12-39
Alignment, warping

2. Press **ENTER** to open the *Warping* menu.
3. Use the ▲ or ▼ key to select *Pin/Barrel*.

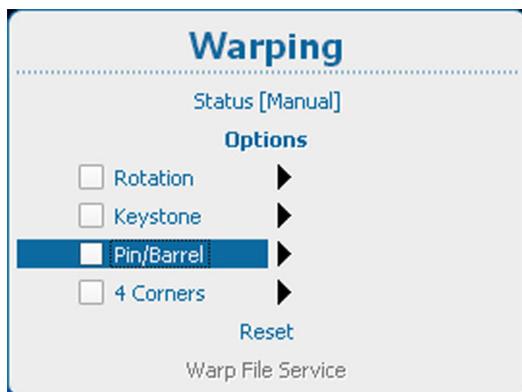


Image 12-40
Warping, Pin/Barrel

4. Press **ENTER** to check the *Pin/Barrel* check box.
5. Use the ► key to open the keystone adjustments.



Image 12-41
Pin/Barrel adjustment

6. Use the ▲ or ▼ key to select *Pinc./Barrel Hor.* or *Pinc/Barrel Vert.*

Use the ◀ or ▶ key to adjust the value of the selected Pin/barrel or enter the value with the numeric keys.

Note: Press **ENTER** to open the bar scale adjustment and use the ▲ or ▼ key or use the ◀ or ▶ key to adjust the horizontal or vertical Pin/barrel correction.

12.8.6 4 corners adjustment

What can be done ?

Each corner can be adjusted separately in the X and Y direction.

How to adjust

1. Press **Menu** to activate the menus and select *Alignment* → *Warping* .

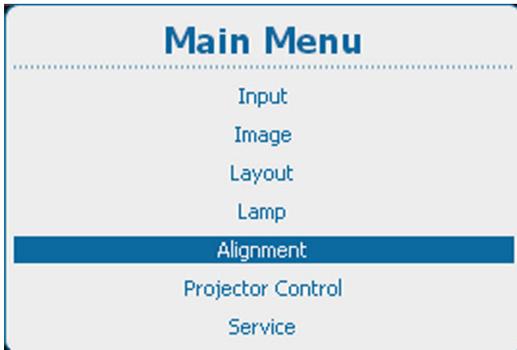


Image 12-42
Main menu, alignment

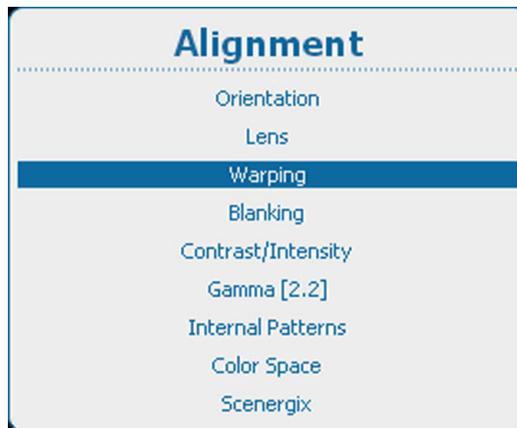


Image 12-43
Alignment, warping

2. Press **ENTER** to open the *Warping* menu.
3. Use the **▲** or **▼** key to select *4 Corners*.

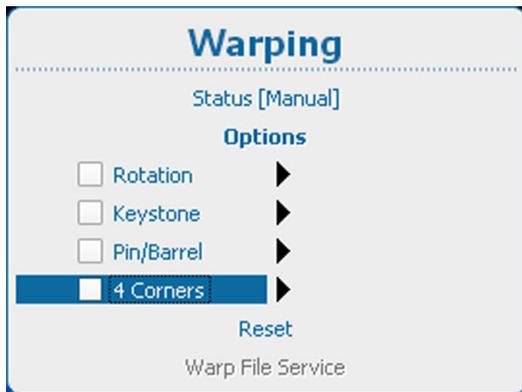


Image 12-44
Warping, 4 corners

4. Use the **▶** key to open the 4 corners adjustment menu.



Image 12-45
4 corner, warping menu

5. Use the **▲** or **▼** key to select the desired corner and direction.
Use the **◀** or **▶** key to adjust the value or enter the value with the numeric keys.
Note: Press **ENTER** to open the bar scale adjustment and use the **▲** or **▼** key or use the **◀** or **▶** key to adjust the X or Y direction of a corner adjustment.

12.8.7 Warp file service



Before warp files can be used, these files must be downloaded on the projector via Projector Toolset equipped with a HDX plug in.

How to start up

1. Press **Menu** to activate the menus and select *Alignment* → *Warping* → *Warp File Service*.

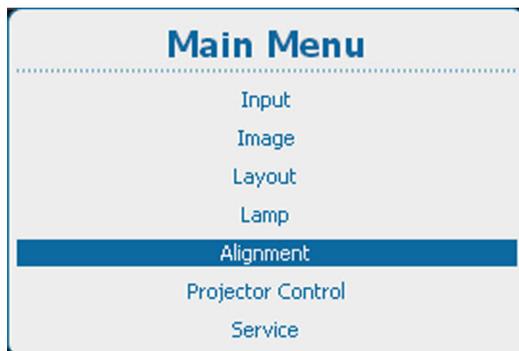


Image 12-46
Main menu, alignment

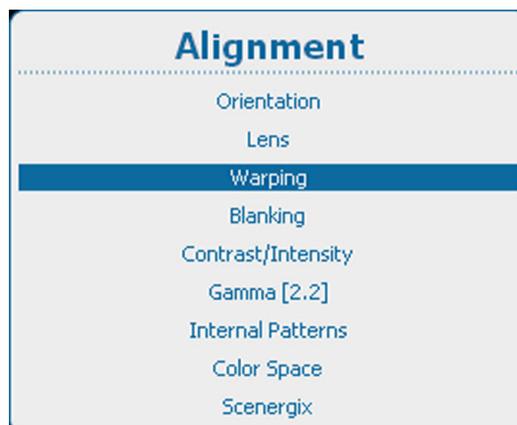


Image 12-47
Alignment, warping

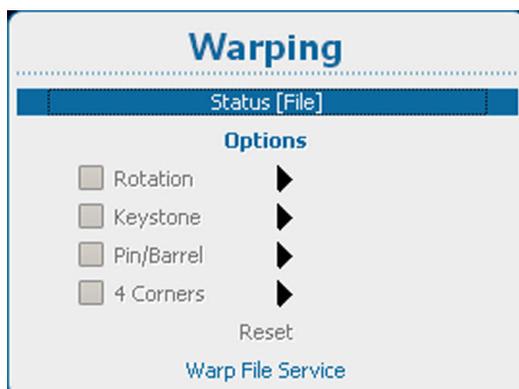


Image 12-48
Warp file service

2. Press **ENTER** to activate.

A list with possible warp files is displayed.

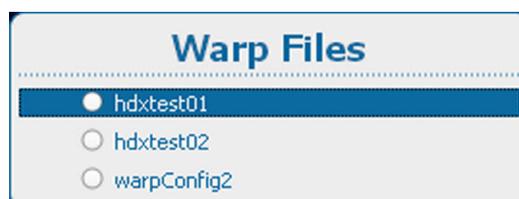


Image 12-49
List of warp files

3. Use the **▲** or **▼** key to select the desired warp file and press **ENTER** to load this file.

12.9 Blanking adjustment

What can be done ?

Blanking adjustments affect only the edges of the projected image and are used to frame the projected image on to the screen and to hide or black out unwanted information (or noise). A '0' on the bar scale indicates no blanking.

Which blanking adjustments are available ?

- top blanking
- bottom blanking
- left blanking
- right blanking



Image 12-50
Blanking

- A Top blanking
- B Bottom blanking
- C Left blanking
- D Right blanking

The reset function brings all blanking settings back to zero.

How to adjust

1. Press **Menu** to activate the menus and select *Alignment* → *Blanking*.

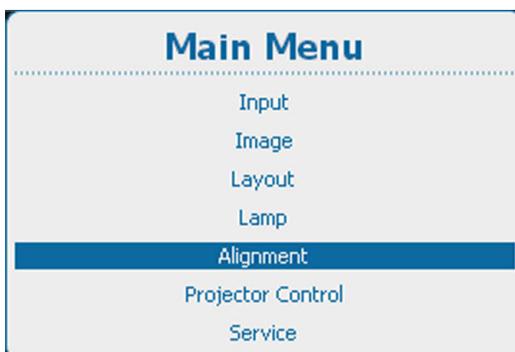


Image 12-51
Main menu, alignment

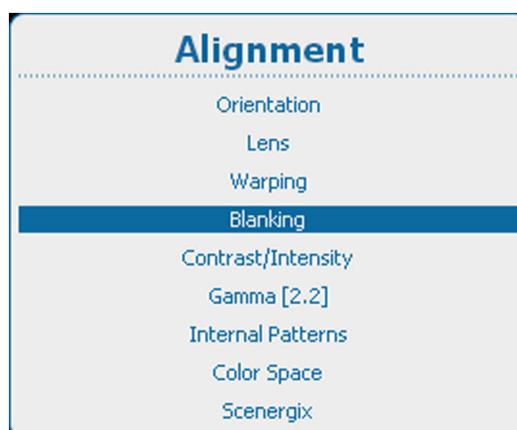


Image 12-52
Alignment, blanking

2. Press **ENTER** to select.

The blanking adjustment menu opens.



Image 12-53
Blanking adjustment

3. Use the ▲ or ▼ key to select the desired blanking adjustment and adjust with the ◀ or ▶ key.



Select **Reset** to reset all blanking adjustments.

12.10 Contrast-Intensity

Purpose

Contrast : change the contrast of the complete output signal (main and PiP window together) of the projected image.

Intensity : change the brightness of the complete output signal (main and PiP window together) of the projected image.

How to set up

1. Press **Menu** to activate the menus and select *Alignment* → *Contrast/Intensity*.

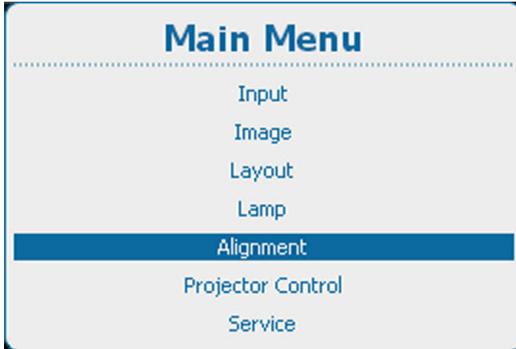


Image 12-54
Main menu, alignment

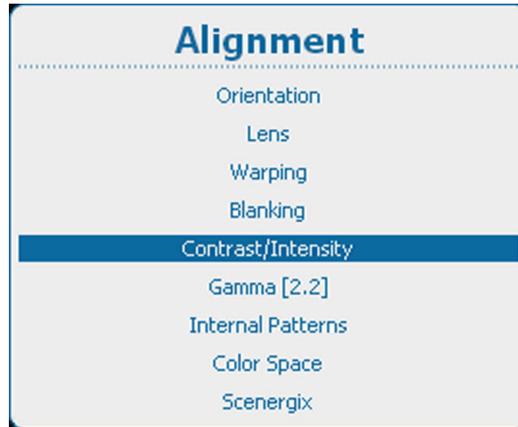


Image 12-55
Alignment, contrast/intensity

2. Press **ENTER** to select.



Image 12-56
Contrast enhancement

3. Use the **▲** or **▼** key to select *Contrast Enhancement*.
Use the **◀** or **▶** key to change the contrast enhancement until the desired value is reached (adjustable between 0 and 5)
4. Use the **▲** or **▼** key to select *Intensity*.
Use the **◀** or **▶** key to change the intensity until the desired value is reached (adjustable between 0 and 255)



Image 12-57
Intensity

12.11 Gamma

About Gamma

Gamma is an image quality enhancement function that offers a richer image by brightening the already darker portions of the image without altering the brightness of the brighter portions (contrast feeling enhanced).

How to adjust

1. Press **Menu** to activate the menus and select *Alignment* → *Gamma*.

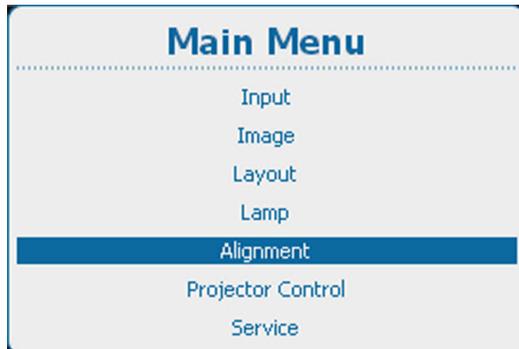


Image 12-58
Main menu, alignment

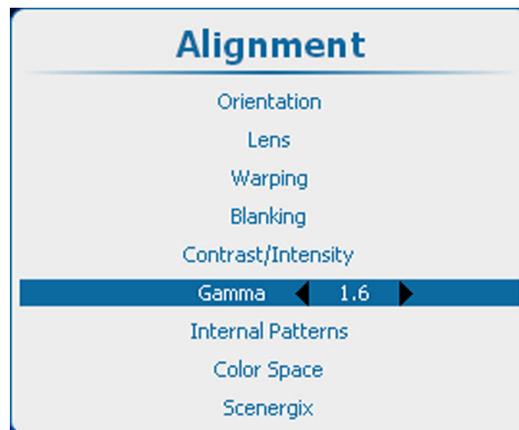


Image 12-59
Alignment, gamma

2. Use the ◀ or ▶ key to change the gamma value between 1.0 and 3.1 .

12.12 Internal patterns

What can be done with these patterns?

The projector is equipped with different internal patterns which can be used for measurement and alignment purposes.

How to select a pattern

1. Press **Menu** to activate the menus and select *Alignment* → *Internal Patterns*.

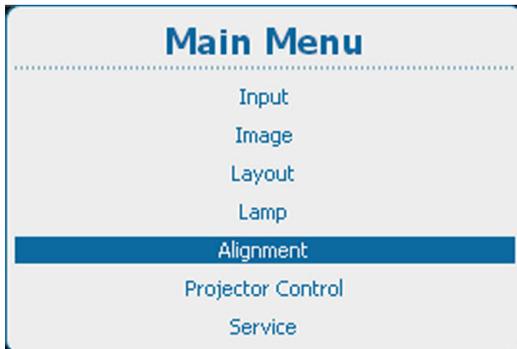


Image 12-60
Main menu, alignment

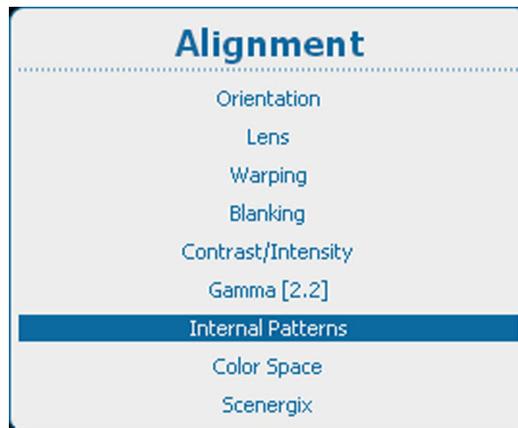


Image 12-61
Alignment, internal patterns

2. Press **ENTER** to select the pattern list.

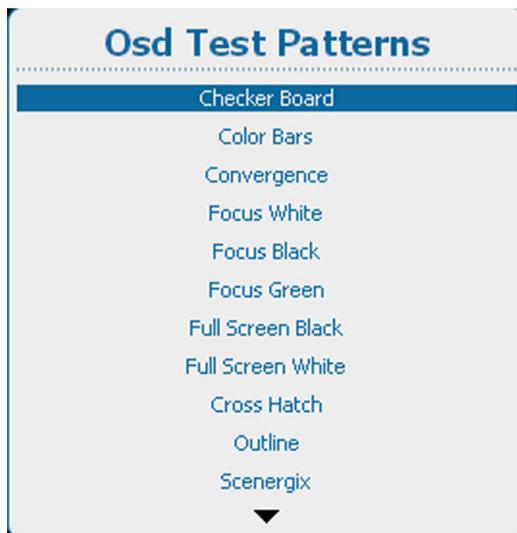


Image 12-62
OSD test patterns

3. Use the **▲** or **▼** key to select a pattern and press **ENTER** to display that pattern.

The following patterns are available:

- Checker board
- Color Bars
- Convergence
- Convergence_2
- Ansi Lumen
- Focus white
- Focus black
- Focus green
- Full Screen Black
- Full Screen White
- Cross Hatch
- Outline
- Scenergix

12.13 Color space



Color space

A color space or color standard is a mathematical representation for a color. For example the RGB color space is based on a Cartesian coordinate system.

What can be adjusted ?

The color space (gamut), the collection of colors which can be reproduced by the projector, can be adjusted to 4 predefined stored values (one projector specific, 2 international standards and one custom preset). A temporary custom adjustment is possible. The maximum color space which can be displayed is the projector color space. This color space is measured at the factory and stored inside the projector.

How to select a color standard

1. Press **Menu** to activate the menus and select *Alignment* → *Color Space*.

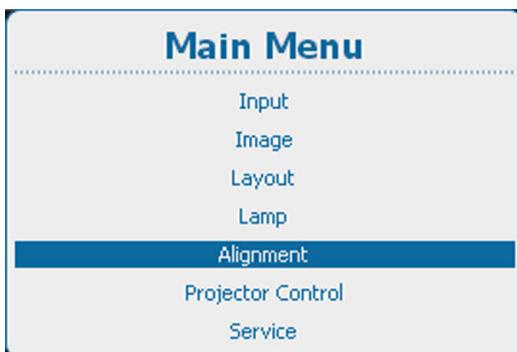


Image 12-63
Main menu, alignment

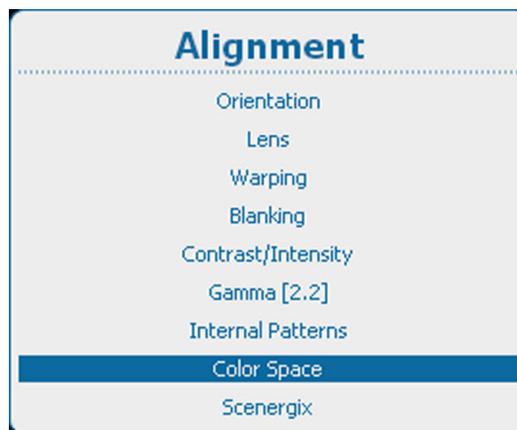


Image 12-64
Alignment, color space



Image 12-65
Color space

2. Select *Status* and press **ENTER** to toggle between *[On]* or *[Off]*.
 - [On] : projector will use the selected color space.
 - [Off] : projector will always use the *Projector* color space.
3. When [On] is selected, depending on the color temperature setting a color space request window opens. The color temperature setting must be set to *Projector White*. Click **Yes** to continue.



Image 12-66

- When [On] is selected and the color temperature is correct, use the ▲ or ▼ key to select the desired color space and press **ENTER** to select.

- Projector Maximum color space
- EBU European Broadcasting Union. This organization defines a European standard.
- SMPTE American standard.
- Custom The user can define the x and y coordinates for red, green and blue which forms the corners of the color space. By changing the coordinates, the color reproduction can be changed.

Edit color targets

Color targets will be used when Custom is selected.

- Select *Edit Color Targets* and press **ENTER**.



Image 12-67
Custom, color targets



Image 12-68
Color targets

- Use the ▲ or ▼ key to select a color coordinate.
Use the ◀ or ▶ key to change the value of the selected coordinate.
Adjust all other coordinates in the same way.



Select **Reset** to return to previous saved values.

12.14 Scenergix

12.14.1 Introduction

Why ScenergiX ?

When working in a multichannel setup the HDX and its Soft Edge possibilities enable an image blending that gives the appearance of a single view, thus achieving realistic immersion for the majority of wide screen applications.

ScenergiX is limited to half the resolution of the projector.

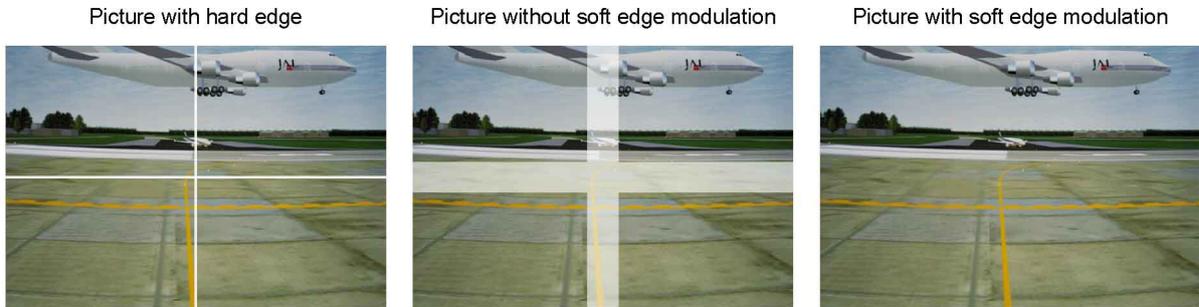


Image 12-69
Why Soft Edge?

What is the Basic Principal of ScenergiX ?

The principle of edge blending is achieved by linear modulation of the light output in the overlap zone so that the light output in that zone equals the light output of the rest of the image.

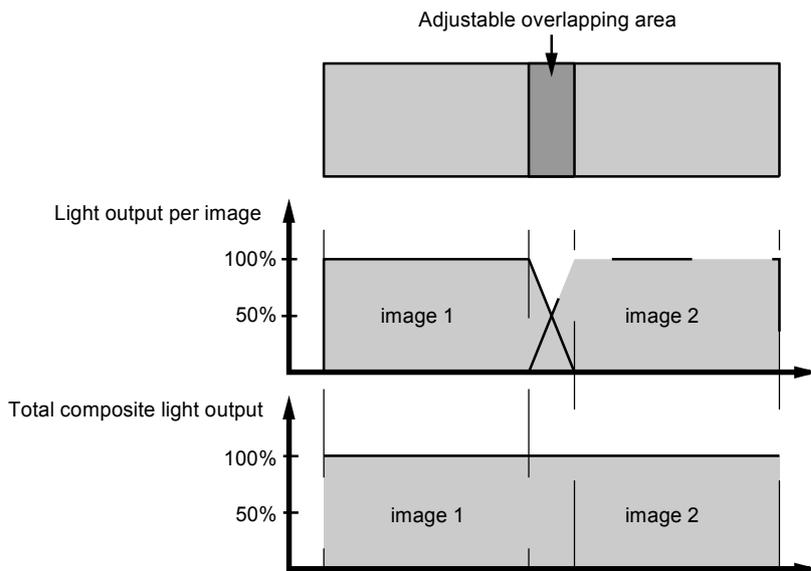


Image 12-70
ScenergiX Basic Principle

12.14.2 Preparations

ScenergiX Preparations

To ensure proper ScenergiX adjustment, be sure that the following adjustments are done perfectly on all projectors:

- Convergence
- Geometry
- Color Matching (Color Temperature, Color Standard, Input Balance, Gamma)

12.14.3 Scenergix activation

How to activate

1. Press **Menu** to activate the menus and select *Alignment* → *Scenergix*.

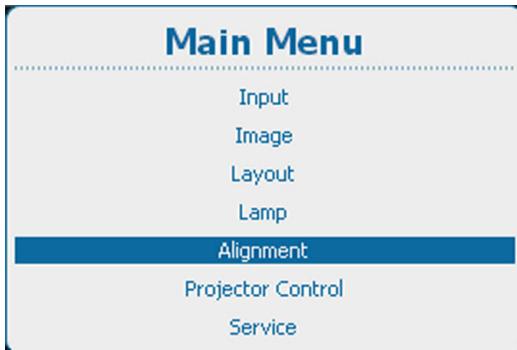


Image 12-71
Main menu, alignment

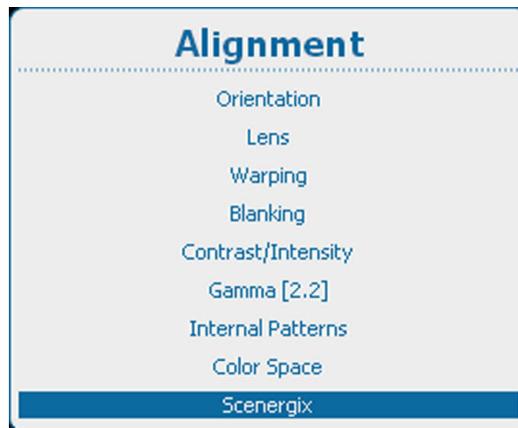


Image 12-72
Alignment, Scenergix

2. Press **ENTER** to select.
The *Scenergix* menu opens.

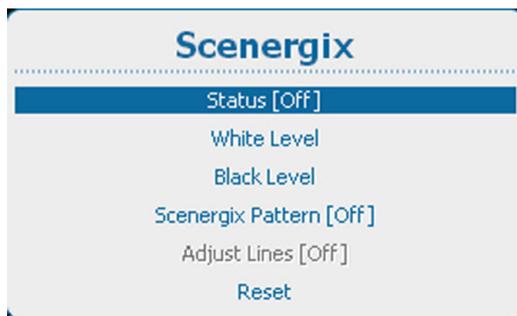


Image 12-73
Scenergix, status

3. Use the **▲** or **▼** key to select Status and press **ENTER** to toggle between *[On]* and *[Off]*
[On] : Scenergix is activated.
[Off] : Scenergix is deactivated

12.14.4 Scenergix pattern

What can be done?

To make the Scenergix adjustment more easy, an internal pattern can be displayed.

How to select

1. Press **Menu** to activate the menus and select *Alignment* → *Scenergix* → *Scenergix Pattern*.

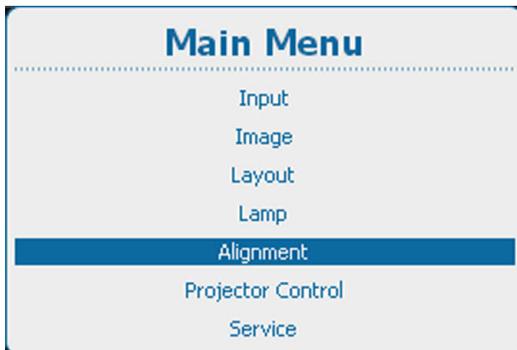


Image 12-74
Main menu, alignment

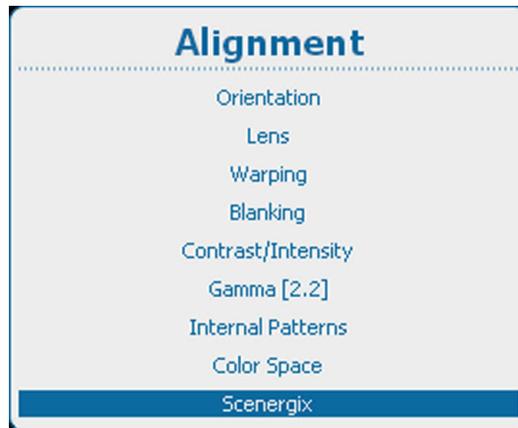


Image 12-75
Alignment, Scenergix

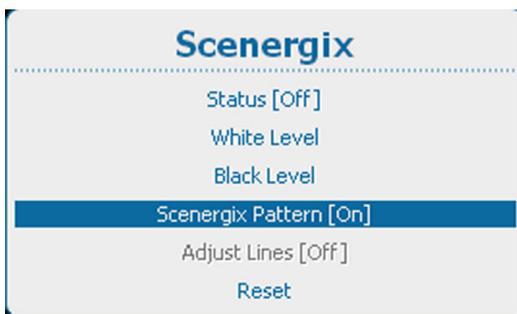


Image 12-76
Scenergix, pattern activation

2. Press **ENTER** to toggle between *[On]* or *[Off]*.

[On] : Internal scenergix pattern is displayed.

[Off] : no scenergix pattern is displayed.

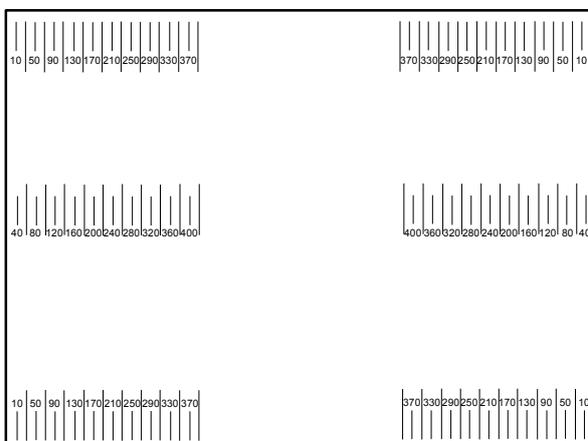


Image 12-77
Scenergix pattern

12.14.5 Scenergix adjustment lines

What can be done?

Border lines for the blending areas can be displayed while adjusting the white and black level.



Adjustment lines can be activated when *Scenergix pattern* is [On].

How to display

1. Press **Menu** to activate the menus and select *Alignment* → *Scenergix* → *Adjust lines*.

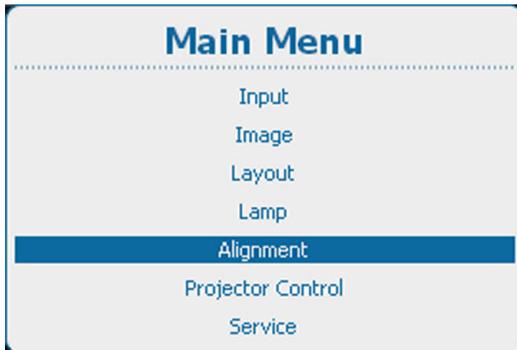


Image 12-78
Main menu, alignment

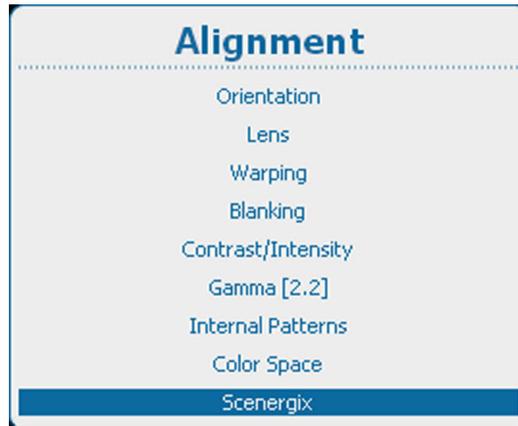


Image 12-79
Alignment, Scenergix

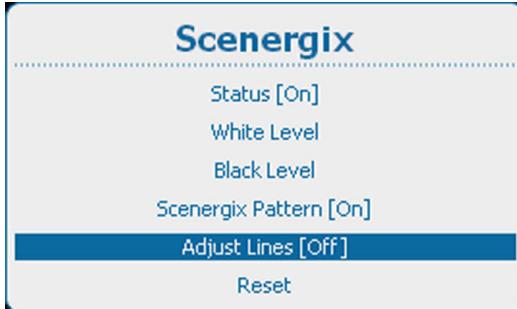


Image 12-80

2. Press **ENTER** to toggle between [On] and [Off].

12.14.6 White level adjustment (blending area)

How to set

1. Press **Menu** to activate the menus and select *Alignment* → *Scenergix* → *White level*.

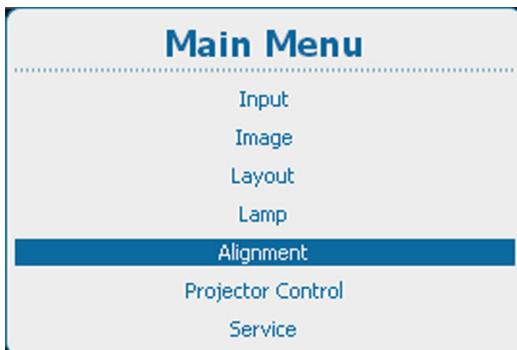


Image 12-81
Main menu, alignment

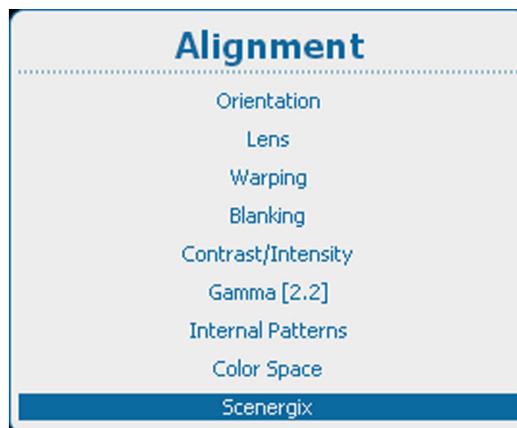


Image 12-82
Alignment, Scenergix



Image 12-83
Scenergix, white level

2. Press **ENTER** to select the *White level* adjustments.

The White level position menu opens.

When Adjustment lines is *[On]*, the different areas are displayed on the screen.



Image 12-84
White level position

3. Use the **▲** or **▼** key to select one of the four size adjustments and press **ENTER** to select
Use the **◀** or **▶** key to change the border of the blending area to the desired position (value between 0 and 255)

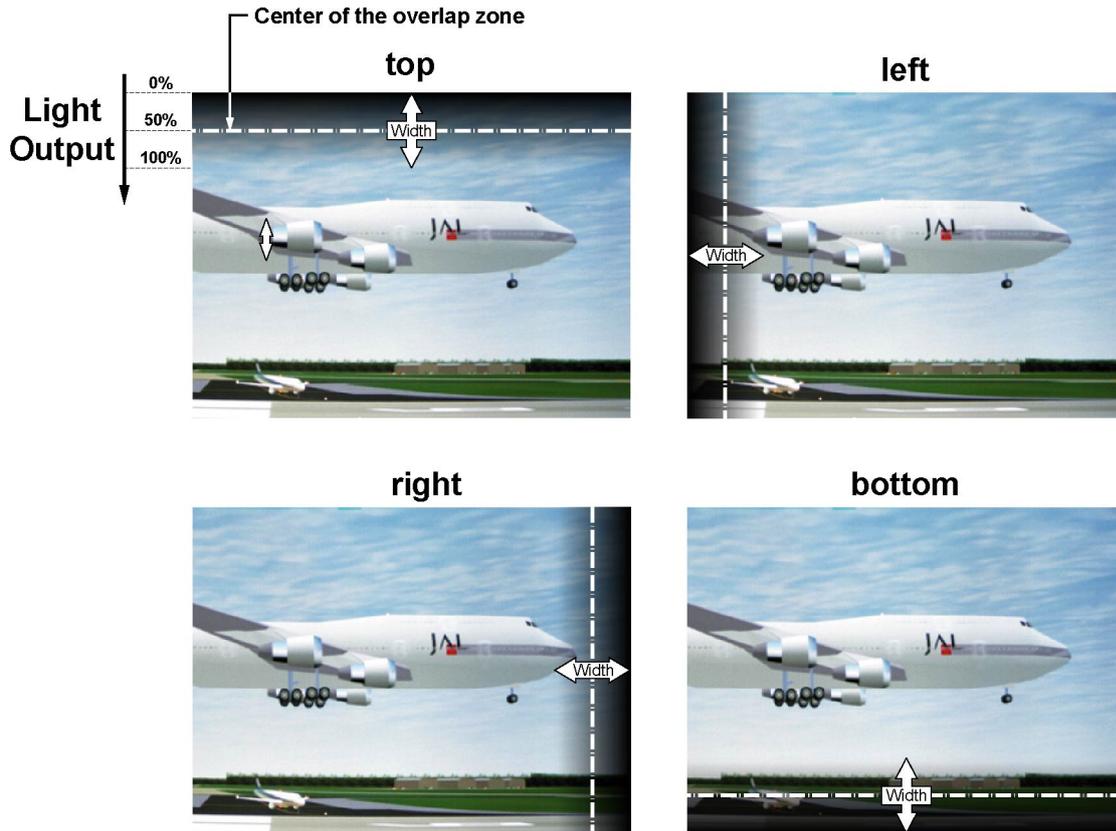


Image 12-85
Width selections

4. Set first the width for the first projector and repeat for the second one.

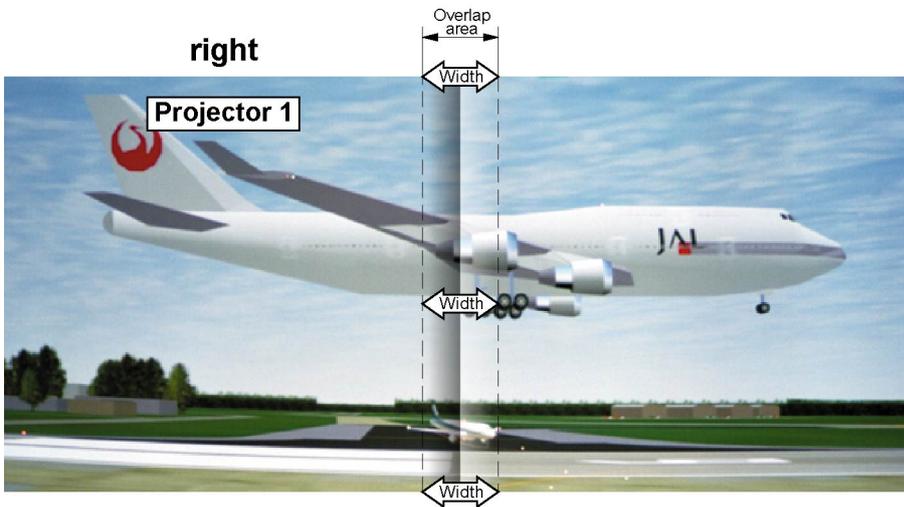


Image 12-86
Width set up for projector 1

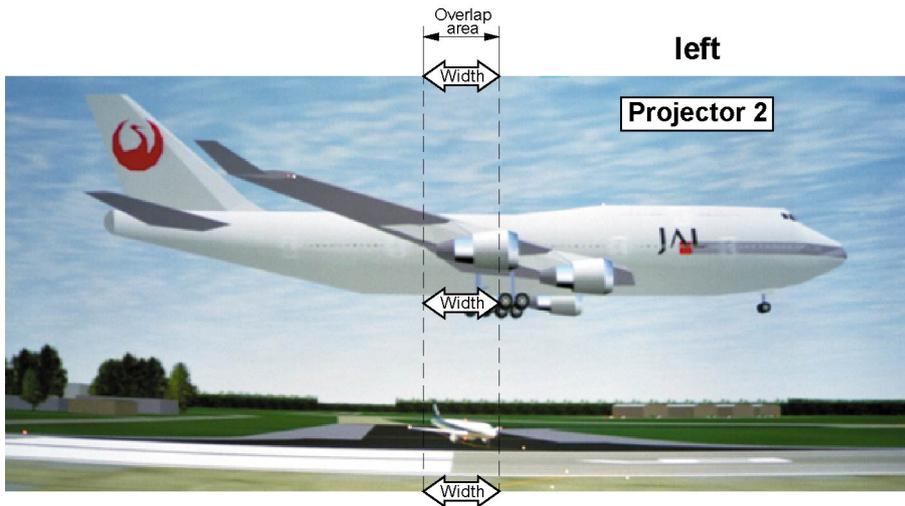


Image 12-87
Width set up for projector 2



To eliminate all blending settings, select *Reset* and press ENTER.

12.14.7 Black level adjustment

Why black level adjustment

For dark images, the overlap zone will be brighter than the rest of the images. Typically for DLP projectors, next to the overlap zone, a brighter area is recognized. This area is known as a DLP leakage area. This area must also be excluded for the black level adjustment. Therefore we can rise the black level of the remaining image (excluding the overlap zone and the DLP leakage area).

First, the width of the leakage area must be set. The white cursor line indicates the border of the overlap area. The green cursor line indicates the current installed DLP leakage area border and starts at the position of the white cursor line (no width installed). This green line can be moved to the border of the DLP leakage area with the cursor keys.

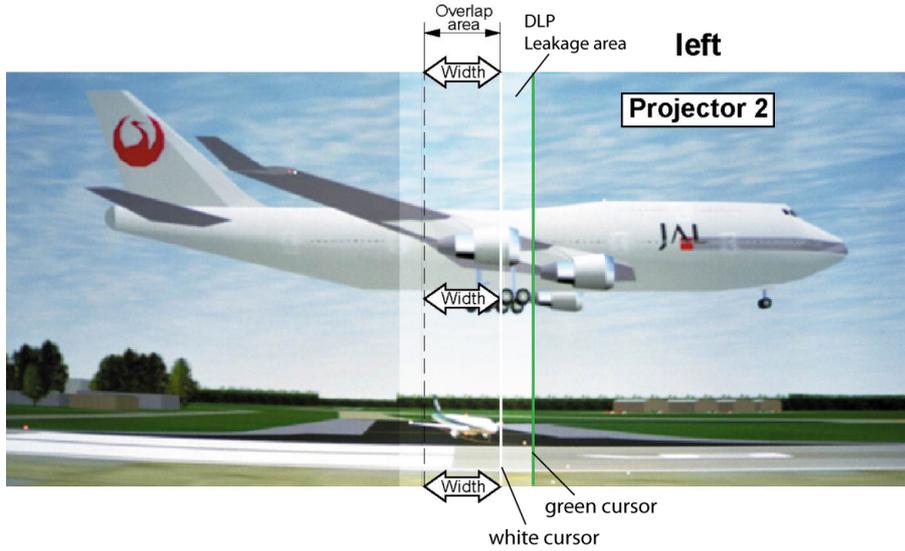


Image 12-88
DLP Leakage area set up



After the area is set, use **TEXT** key to remove the area border lines when adjusting the black level.

How to set the leakage area width

1. Press **Menu** to activate the menus and select *Alignment* → *Scenergix* → *Black level*.

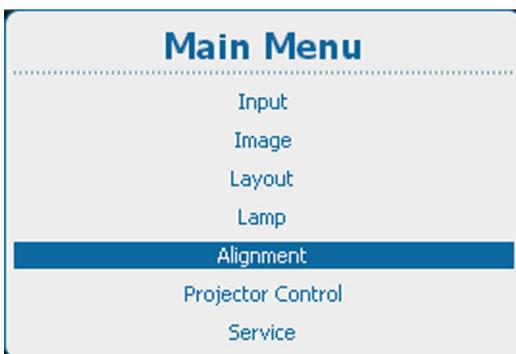


Image 12-89
Main menu, alignment

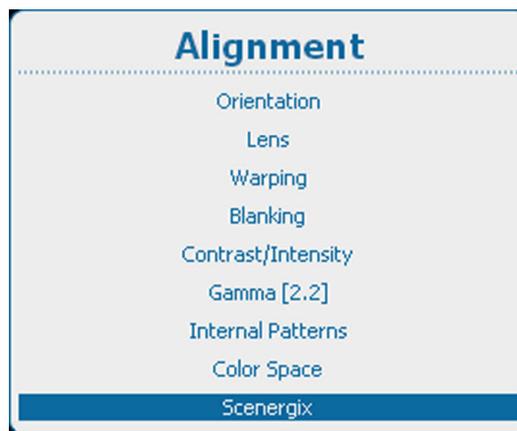


Image 12-90
Alignment, Scenergix

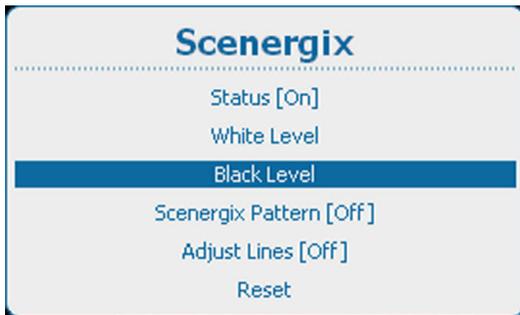


Image 12-91
Scenergix, Black level

2. Press **ENTER** to select the *Black Level* adjustments.



Image 12-92
Black level, area

3. Use the **▲** or **▼** key to select one of the four size adjustments.
Use the **◀** or **▶** key to move the green border line to the desired position.

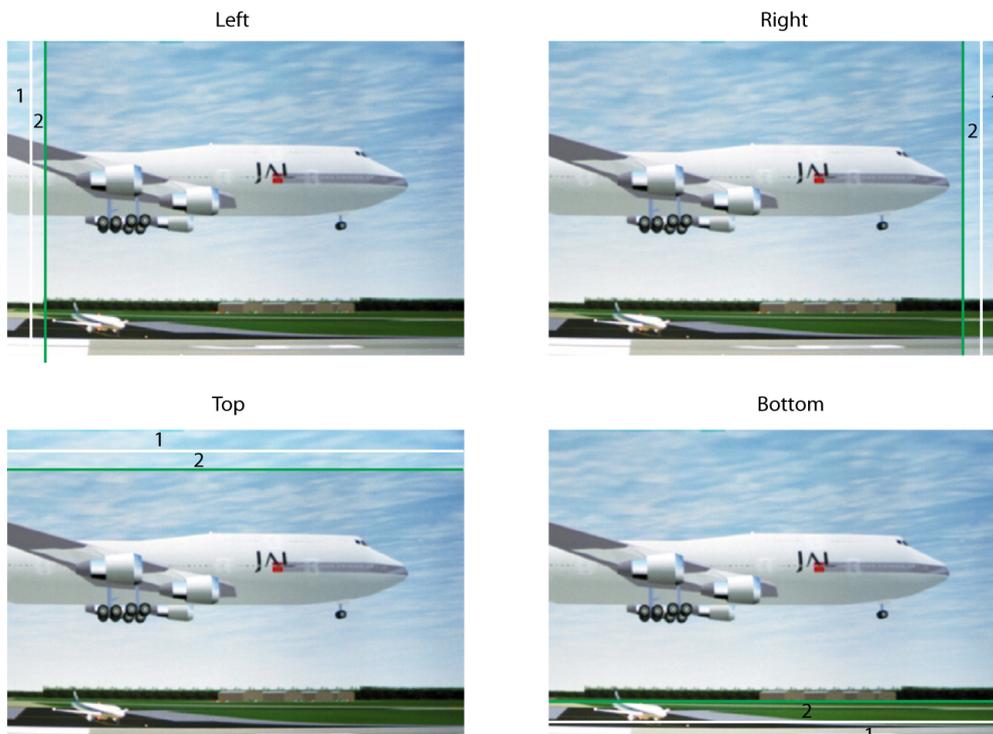


Image 12-93
DLP leakage area

- 1 Overlap area
- 2 DLP Leakage area

How to adjust

1. Press **Menu** to activate the menus and select *Alignment* → *Scenergix* → *Black level*.

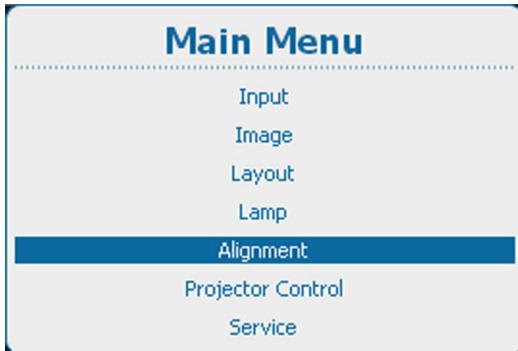


Image 12-94
Main menu, alignment

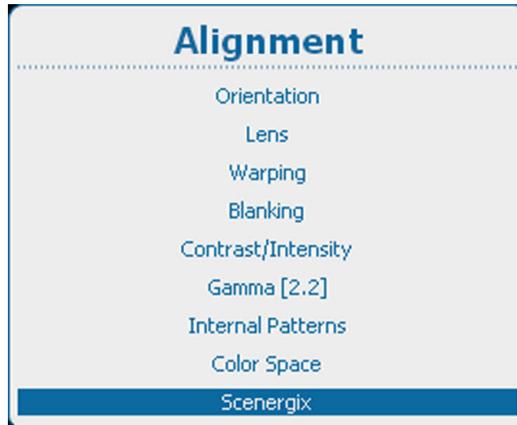


Image 12-95
Alignment, Scenergix

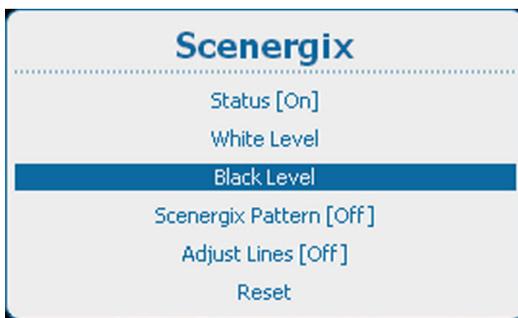


Image 12-96
Scenergix, Black level

2. Press **ENTER** to select and use the ▲ or ▼ key to select a color to adjust.



Image 12-97
Black level, adjust

3. Adjust the black level of area A until the black level of area A, B and C are equal. Use the Adjust function Red, Green and Blue in the Black level menu.

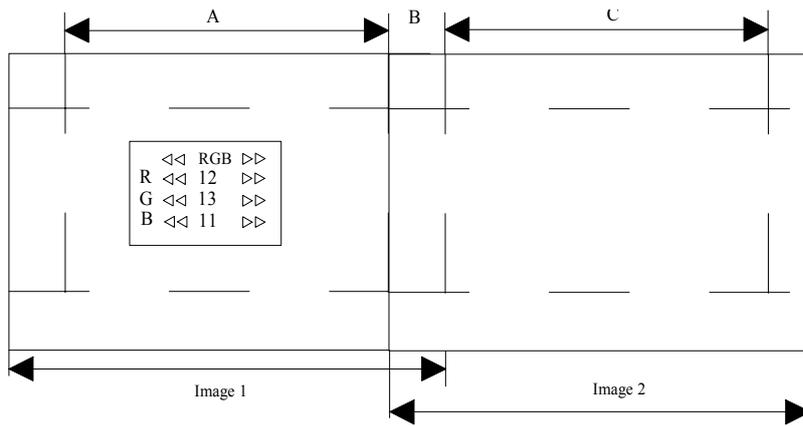


Image 12-98
Black level adjustment

13. PROJECTOR CONTROL

Overview

- Projector Control menu overview
- Individual Projector Address
- Projector Common Address
- Serial Communication
- Network
- IR Control switching
- DMX
- Buttons
- Menu position
- Local LCD
- Language selection

13.1 Projector Control menu overview

Overview table

| Level 1 | Level 2 | Level 3 |
|-------------------|----------------------|---|
| Projector Control | Projector Address | Projector address Common address |
| | Serial Communication | Baud rate Interface standard |
| | Network | Wired DHCP [On] [Off] IP address Subnet mask Default gateway Wireless Status DHCP IP address Subnet mask |
| | IR Control | IR front IR back IR side |
| | DMX | Address Universe Mode Art DMX [On/Off] Monitor |
| | Buttons | Shortcut keys Standby button |
| | Menu position | Menu position Bar scale position |
| | Local LCD | Back light Time out |
| | Change Language | |

13.2 Individual Projector Address

About individual projector address

Before a projector, and only this projector, can be controlled via a remote control, an individual address must be entered in the projector.

This individual projector address can then be used to control the projector via remote control or via a serial connection.

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

How to set the address

1. Press **Menu** to activate the menus and select *Projector Control* → *Projector Address* → *Projector Address*.

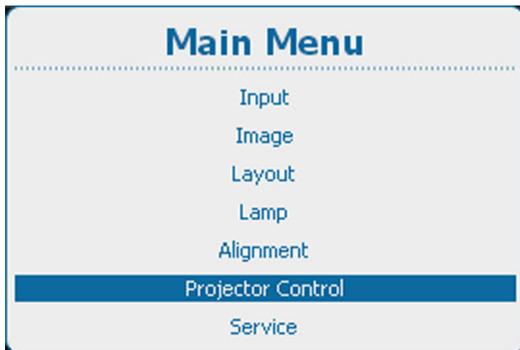


Image 13-1
Main menu, projector control



Image 13-2
Projector control, projector address



Image 13-3
Projector address

2. Press **ENTER** to activate the address input.



Image 13-4
Projector address, input

3. Use the **▲** or **▼** key to change the selected character.
Use the **◀** or **▶** key to select another character.

Note: *Digits can be entered with the digit keys on the remote control or the local keypad. When a digit is entered in that way, the next character will be selected automatically.*

13.3 Projector Common Address

About common address

A common address can be '0' or '1'.

Any command coming from a remote control programmed with that common address will be executed.

How to set

1. Press **Menu** to activate the menus and select *Projector Control* → *Projector Address* → *Common Address*.

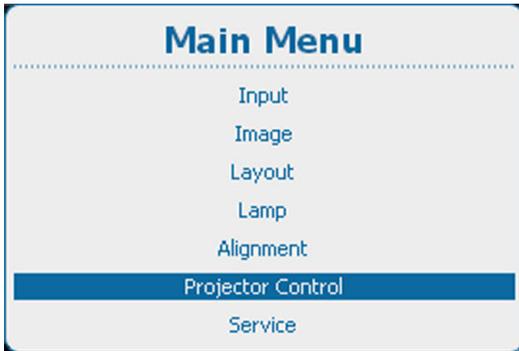


Image 13-5
Main menu, projector control



Image 13-6
Projector control, projector address



Image 13-7
Projector address, common address

2. Press **ENTER** to activate the address input.



Image 13-8
Projector common address

13.4 Serial Communication

Overview

- Baud rate setup
- Interface Standard

13.4.1 Baud rate setup

What can be done ?

The baud rate for to establish a serial communication with a computer can be set.

How to set

1. Press **Menu** to activate the menus and select *Projector Control* → *Serial Communication* → *Baudrate*.

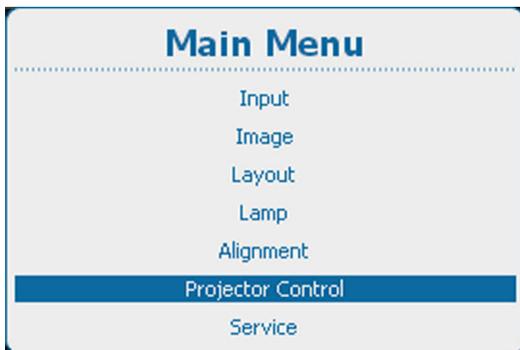


Image 13-9
Main menu, projector control



Image 13-10
Projector control, serial communication



Image 13-11
Serial communication, baud rate

2. Press **ENTER** to toggle between the available baud rates.
The following baud rates can be selected:
 - 9600
 - 19200
 - 38400
 - 57600
 - 115200

13.4.2 Interface Standard

What can be done?

The communication protocol for the communication between the projector and a computer can be set to RS232 or RS422.

How to set up

1. Press **Menu** to activate the menus and select *Projector Control* → *Serial Communication*.

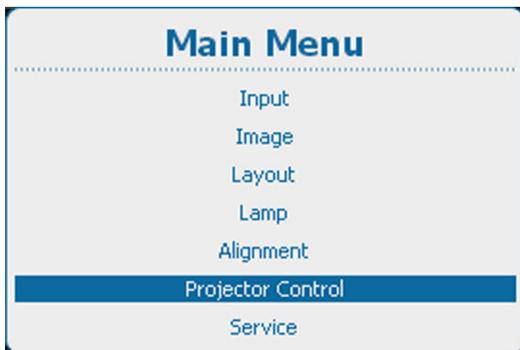


Image 13-12
Main menu, projector control



Image 13-13
Projector control, serial communication

2. Use the **▲** or **▼** key to select *Interface Standard*. Press **ENTER** to toggle between *[RS232]* or *[RS422]*.



Image 13-14
Interface standard

13.5 Network

About a network connection

A network connection can be made via a wired connection or via the optional wireless unit.

Overview

- Introduction to a Network connection
- Wired DHCP set up
- Wired IP address set up
- Wired subnet mask set up
- Wired default gateway set up
- Wireless network activation
- Wireless access points selection and setup
- Wireless DHCP set up
- Wireless fixed IP address set up
- Wireless subnet mask set up
- Wireless default gateway set up

13.5.1 Introduction to a Network connection

**DHCP**

Dynamic host configuration protocol. DHCP is a communications protocol that lets network administrators manage centrally and automate the assignment of IP addresses in an organization's network. Using the Internet Protocol, each machine that can connect to the Internet needs a unique IP address. When an organization sets up its computer users with a connection to the Internet, an IP address must be assigned to each machine. Without DHCP, the IP address must be entered manually at each computer and, if computers move to another location in another part of the network, a new IP address must be entered. DHCP lets a network administrator supervise and distribute IP addresses from a central point and automatically sends a new IP address when a computer is plugged into a different place in the network.

**IP**

Internet Protocol. The network layer of TCP/IP. Required for communication with the internet.

**Subnet mask**

A number that is used to identify a subnetwork so that IP addresses can be shared on a local area network.

**Default Gateway**

A router that serves as an entry point into and exit point out of a network. For example, a local network (LAN) may need a gateway to connect it to a wide area network (WAN) or to the Internet.

**MAC address**

Media Access Control address. Unique hardware number, used in combination with the IP-address to connect to the network (LAN or WAN).

What should be set up for an Ethernet address?

2 ways can be used to assign an address:

- use the DHCP setting so that an automatic address will be assigned.
- Assign manually an IP address, Net-mask (subnet-mask), (default) gateway address.
 - Set the IP-Address field to the desired value. This must NOT be 0.0.0.0 for static IP-Address assignment. The IP address identifies a projector's location on the network in the same way a street address identifies a house on a city block. Just as a street address must identify a unique residence, an IP address must be globally unique and have a uniform format.
 - Set the Subnet-Mask as appropriate for the local subnet.
 - Set the Default-Gateway to the IP-Address of the local router (MUST be on the local subnet!) on the same network as this projector that is used to forward traffic to destinations beyond the local network. This must not be 0.0.0.0. If there is no router on the projector's local subnet then just set this field to any IP-Address on the subnet.

13.5.2 Wired DHCP set up

How to set up

1. Press **Menu** to activate the menus and select *Projector Control* → *Network*.

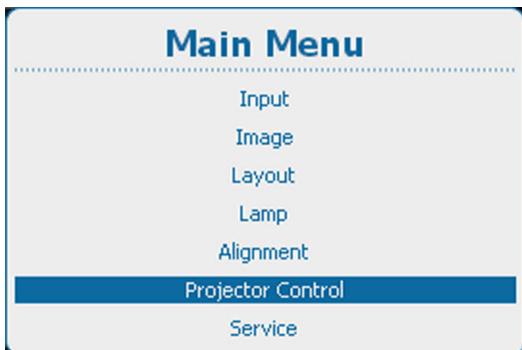


Image 13-15
Main menu, projector control



Image 13-16
Projector control, network



Image 13-17
Wired DHCP

2. Use the **▲** or **▼** key to select *DHCP* under *Wired* and press **ENTER** to toggle between *[On]* or *[Off]*.
[On] : DHCP is activated. An automatic IP address is assigned.
[Off] : DHCP is deactivated. A fixed address must be used.

13.5.3 Wired IP address set up

How to set up

1. Press **Menu** to activate the menus and select *Projector Control* → *Network*.

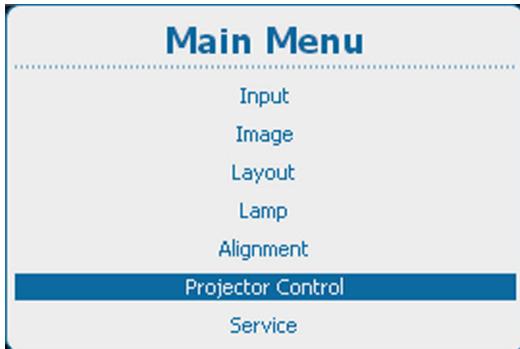


Image 13-18
Main menu, projector control



Image 13-19
Projector control, network



Image 13-20

2. Use the **▲** or **▼** key to select *IP Address* under *Wired* and press **ENTER** to activate the input box.



Image 13-21

3. Use the **▲** or **▼** key to change the selected character.

13. Projector Control

Use the ◀ or ▶ key to select another character.

Note: *Digits can be entered with the digit keys on the remote control or the local keypad. When a digit is entered in that way, the next character will be selected automatically.*

13.5.4 Wired subnet mask set up



Subnet for Wired and Wifi must be different !

How to set up

1. Press **Menu** to activate the menus and select *Projector Control* → *Network*.

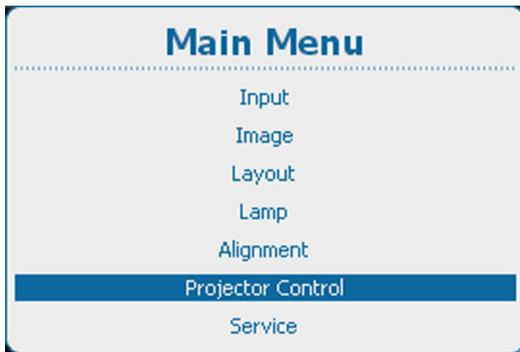


Image 13-22
Main menu, projector control



Image 13-23
Projector control, network



Image 13-24
Subnet mask

2. Use the **▲** or **▼** key to select *Subnet Mask* under *Wired* and press **ENTER** to activate the input box.



Image 13-25

3. Use the ▲ or ▼ key to change the selected character.
Use the ◀ or ▶ key to select another character.

Note: Digits can be entered with the digit keys on the remote control or the local keypad. When a digit is entered in that way, the next character will be selected automatically.

13.5.5 Wired default gateway set up

How to set up

1. Press **Menu** to activate the menus and select *Projector Control* → *Network*.

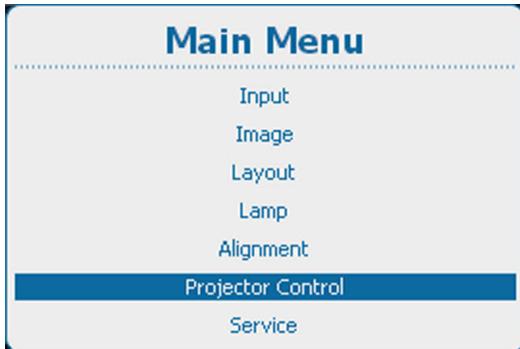


Image 13-26
Main menu, projector control



Image 13-27
Projector control, network



Image 13-28
Network, default gateway

2. Use the **▲** or **▼** key to select *Default Gateway* under *Wired* and press **ENTER** to activate the input box.



Image 13-29
Default Gateway, input

13. Projector Control

3. Use the ▲ or ▼ key to change the selected character.
Use the ◀ or ▶ key to select another character.

Note: *Digits can be entered with the digit keys on the remote control or the local keypad. When a digit is entered in that way, the next character will be selected automatically.*

13.5.6 Wireless network activation



Can only be used with a wireless network module installed.

What can be done ?

Before a wireless network can be used, the status must be set to On.

How to activate

1. Press **Menu** to activate the menus and select *Projector Control* → *Network* → *Wireless setup*.

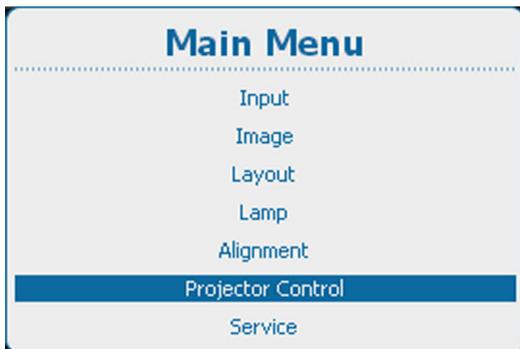


Image 13-30
Main menu, projector control



Image 13-31
Projector control, network



Image 13-32
Network, wireless

2. Press **ENTER** to select.

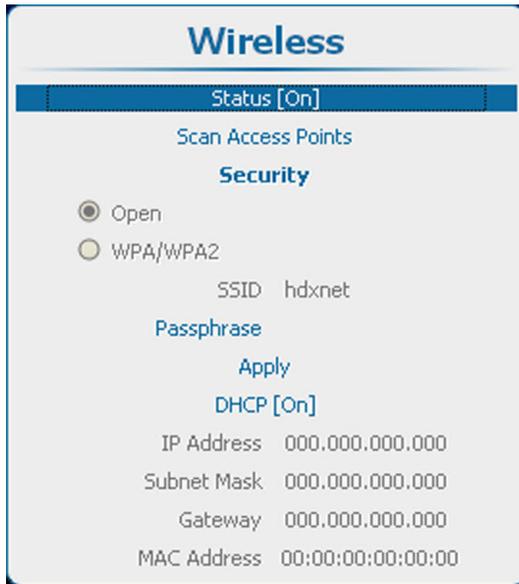


Image 13-33
Wireless, status

3. Press **ENTER** to toggle the status between *[Off]* and *[On]*.

13.5.7 Wireless access points selection and setup



These menu items are only accessible when wireless network status is set to [on].

Scan for access points

1. Select *Scan access points* and press **ENTER** to start the scan.

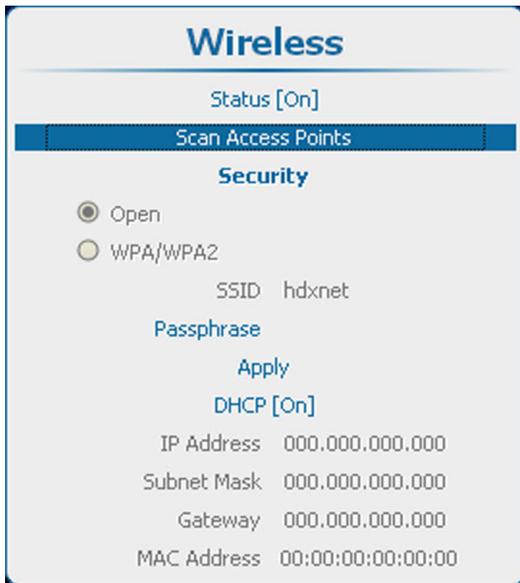


Image 13-34
Scan access points

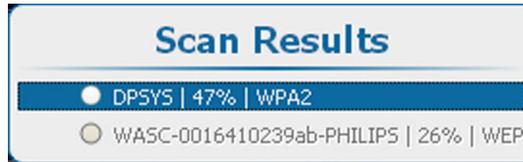


Image 13-35
Scan access points, results

2. Use the **▲** or **▼** key to select the desired access point and press **ENTER** to activate.

The security type of the network is indicated with the radio button in front of *Open* or *WPA/WPA2*. The network name is also indicated next to *SSID*.

Note : WEP is not supported.

Access to a wireless secured access point

1. Use the **▲** or **▼** key to select *Passphrase*.

For a secured network, a passphrase should be entered before getting access to the wireless network.

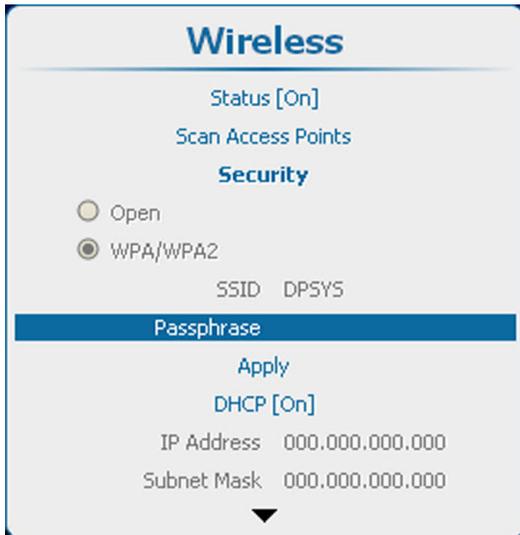


Image 13-36
Passphrase, selection

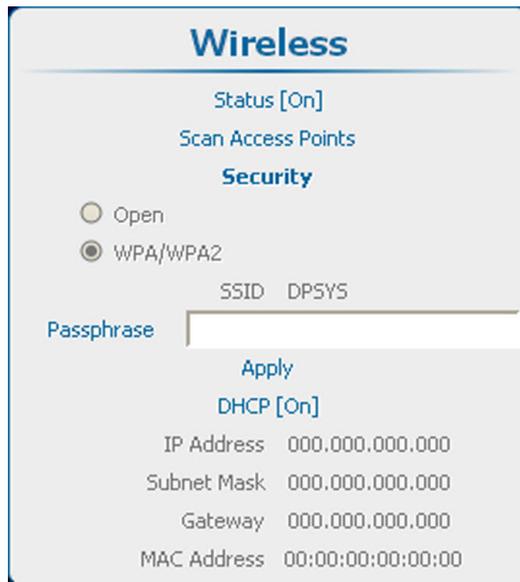


Image 13-37
Passphrase, entry

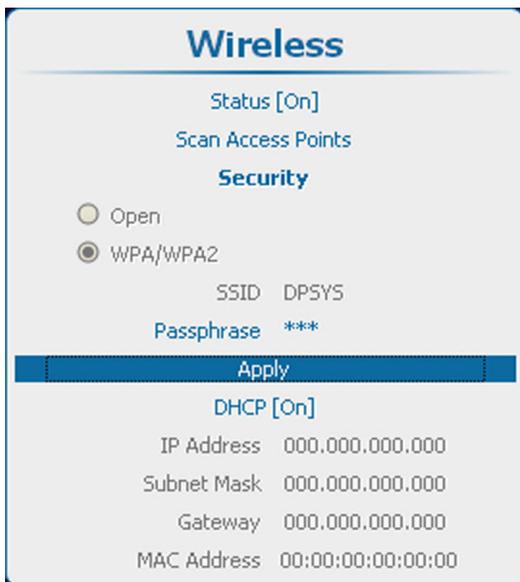


Image 13-38
Open network connection

2. Press **ENTER** to activate the input field.
3. Enter the passphrase. The input is case sensitive. Press **ENTER** to finish the input of the passphrase.
4. Use the **▲** or **▼** key to select Apply and press **ENTER** to open the network connection. An IP address can now be obtained via DHCP or a fixed IP address can be setup.

13.5.8 Wireless DHCP set up



Can only be used with a wireless network module installed.

How to set up

1. Press **Menu** to activate the menus and select *Projector Control* → *Network* → *Wireless Setup* .

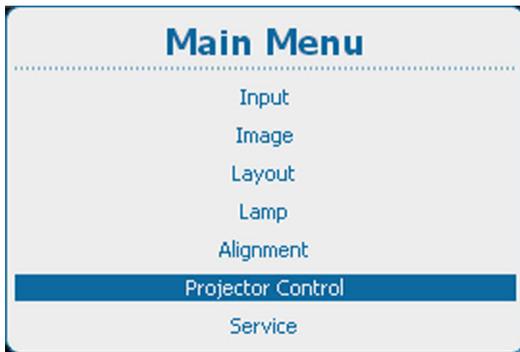


Image 13-39
Main menu, projector control



Image 13-40
Projector control, network



Image 13-41
Network, wireless

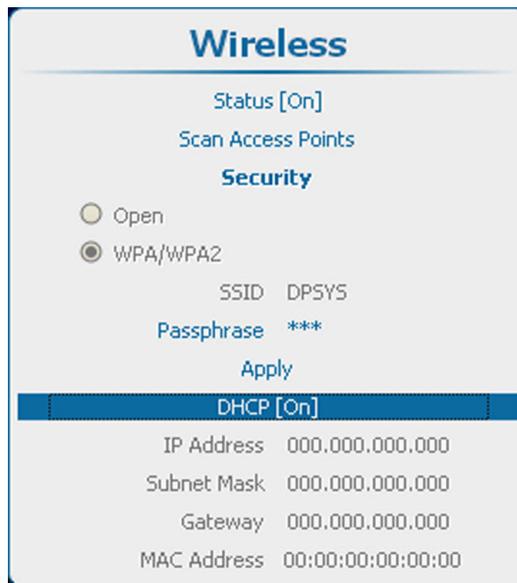


Image 13-42
Wireless, DHCP

2. Press **ENTER** to open the *Wireless* menu.
3. Use the **▲** or **▼** key to select *DHCP* and press **ENTER** to toggle between *[On]* or *[Off]*.
 - [On] : Wireless DHCP is activated. An automatic IP address is assigned.
 - [Off] : Wireless DHCP is deactivated. A fixed address must be used.

13.5.9 Wireless fixed IP address set up



Can only be used with a wireless network module installed.

How to set up

1. Press **Menu** to activate the menus and select *Projector Control* → *Network* → *Wireless Setup*.

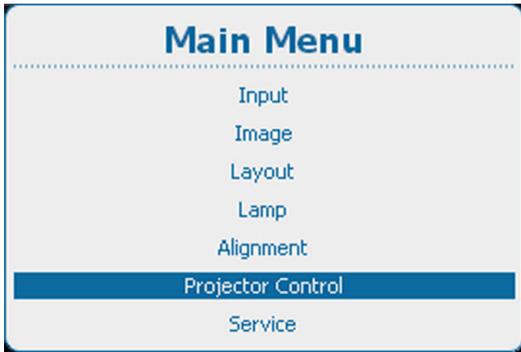


Image 13-43
Main menu, projector control



Image 13-44
Projector control, network



Image 13-45
Network, wireless



Image 13-46
Network, wireless

2. Use the **▲** or **▼** key to select *IP Address* and press **ENTER** to activate the input box.



Image 13-47
Wireless IP address input

3. Press **ENTER** to open the *Wireless* menu.
4. Use the **▲** or **▼** key to change the selected character.
Use the **◀** or **▶** key to select another character.
Note: *Digits can be entered with the digit keys on the remote control or the local keypad. When a digit is entered in that way, the next character will be selected automatically.*

13.5.10 Wireless subnet mask set up



Can only be used with a wireless network module installed.



Subnet for *Wired* and *Wifi* must be different !

How to set up

1. Press **Menu** to activate the menus and select *Projector Control* → *Network* → *Wireless Setup*.

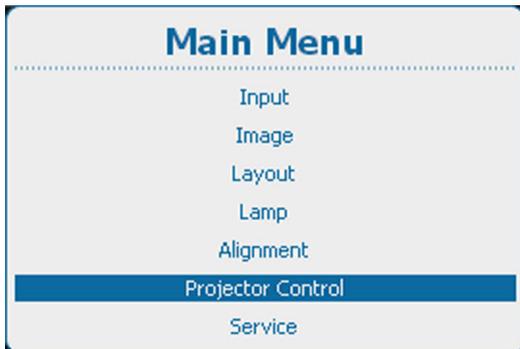


Image 13-48
Main menu, projector control

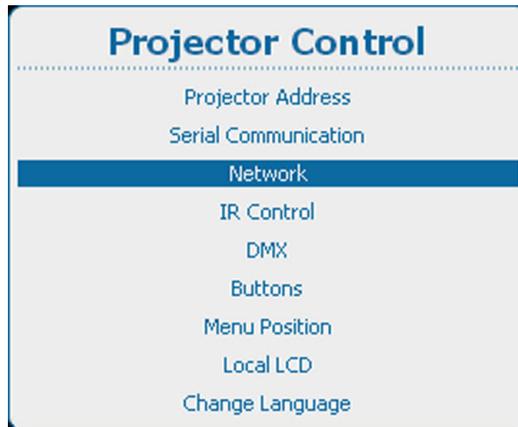


Image 13-49
Projector control, network



Image 13-50
Network, wireless



Image 13-51
Network, wireless Subnet Mask

2. Press **ENTER** to open the *Wireless* menu.
3. Use the **▲** or **▼** key to select *Subnet Mask* and press **ENTER** to activate the input box.



Image 13-52
Wireless Subnet Mask, input

4. Use the ▲ or ▼ key to change the selected character.
Use the ◀ or ▶ key to select another character.

Note: Digits can be entered with the digit keys on the remote control or the local keypad. When a digit is entered in that way, the next character will be selected automatically.

13.5.11 Wireless default gateway set up



Can only be used with a wireless network module installed.

How to set up

1. Press **Menu** to activate the menus and select *Projector Control* → *Network* → *Wireless Setup*.

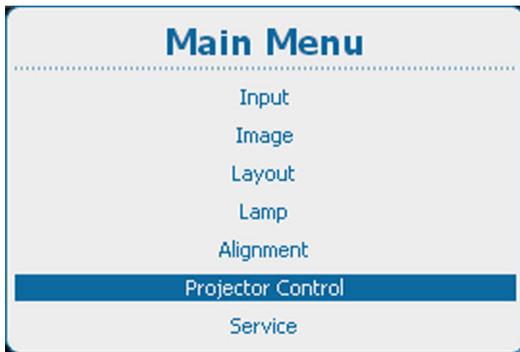


Image 13-53
Main menu, projector control

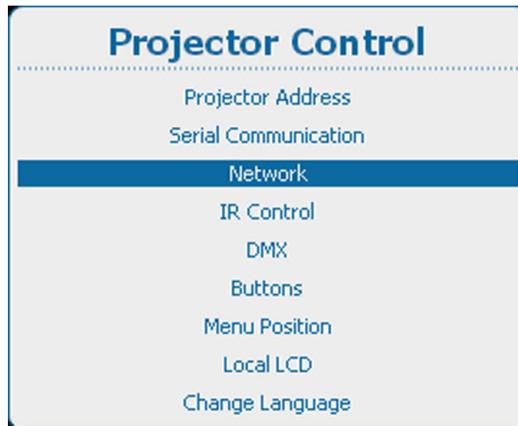


Image 13-54
Projector control, network



Image 13-55
Network, wireless



Image 13-56
Wireless default gateway

2. Press **ENTER** to open the *Wireless* menu.
3. Use the **▲** or **▼** key to select *Subnet Mask* and press **ENTER** to activate the input box.



Image 13-57
Wireless default gateway, input

4. Use the ▲ or ▼ key to change the selected character.
Use the ◀ or ▶ key to select another character.

Note: Digits can be entered with the digit keys on the remote control or the local keypad. When a digit is entered in that way, the next character will be selected automatically.

13.6 IR Control switching

What can be done ?

Each IR receiver inside the projector can be activated or deactivated. When an IR receiver is deactivated, no IR signal send to this IR receiver will be processed.

How to activate or deactivate

1. Press **Menu** to activate the menus and select *Projector Control* → *IR control*.

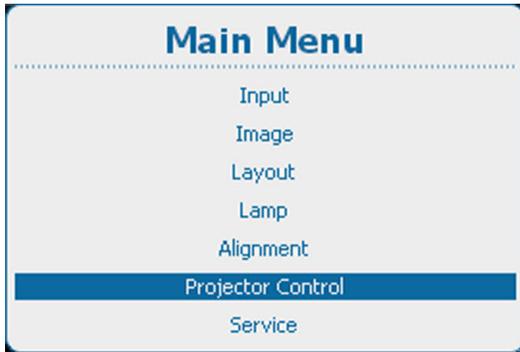


Image 13-58
Main menu, projector control



Image 13-59
Projector control, IR control

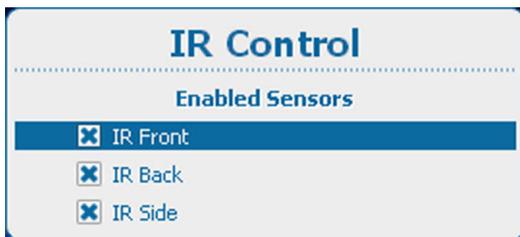


Image 13-60
IR control

2. Use the **▲** or **▼** key to select the desired IR control and press **ENTER** to check checkbox.

Checked : IR receiver is enabled and can receive and process commands send by the remote control.

Not checked : IR receiver is disabled and not receive any command.

13.7 DMX

Overview

- DMX address
- DMX universe
- DMX mode
- Art-Net DMX
- Front XLR output voltage control
- Monitor

About the ways to control the projector via DMX

With a standard DMX cable equipped with XLR connector DMX signals can be connected to the DMX In port on the communicator interface. The DMX out can be used to create a chain of DMX devices. One universe can control up to 512 channels.

If you are using a DMX console and other automated lighting products compatible with Art-Net, the Ethernet network can serve as the link for DMX control. All DMX controls can be sent over the Ethernet cable. Multiple universes are possible.

13.7.1 DMX address

What should be done ?

Before a projector can execute DMX commands, a unique address, called DMX address, should be given to the projector. This address can vary from 1 to 512.

How to set the DMX address

1. Press **Menu** to activate the menus and select *Projector Control* → *DMX* → *Address*.

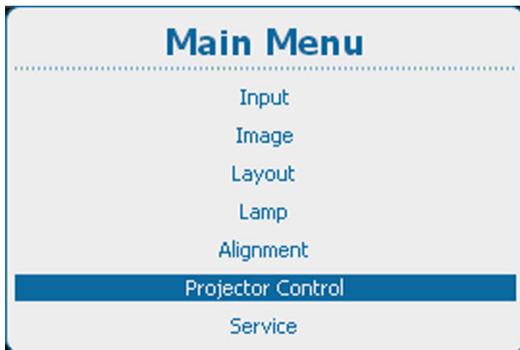


Image 13-61
Main menu, projector control



Image 13-62
Projector control, DMX

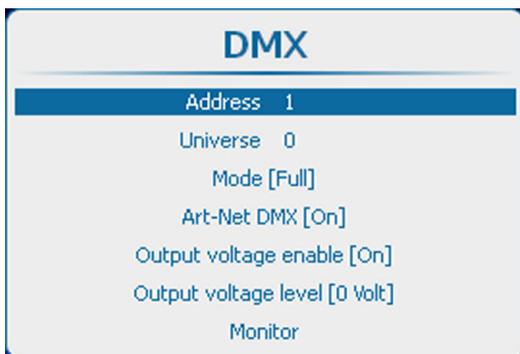


Image 13-63
DMX, address

2. Press **ENTER** to select.

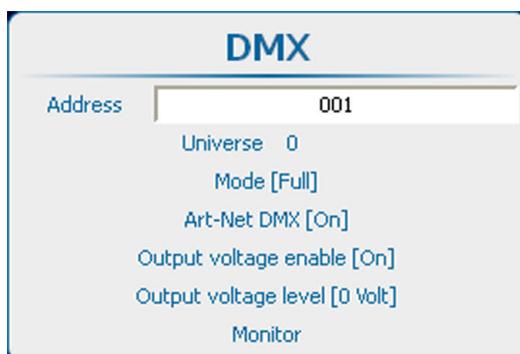


Image 13-64
DMX address

3. Use the ▲ or ▼ key to change the selected character.
Use the ◀ or ▶ key to select another character.

Note: *Digits can be entered with the digit keys on the remote control or the local keypad. When a digit is entered in that way, the next character will be selected automatically.*

13.7.2 DMX universe

What can be done ?

Depending on the DMX mode, one DMX universe can contain a different number of projectors. E.g. DMX mode = basic, the DMX universe can contain up to 256 projectors

Universes are only meaningful for Art-Net applications as only there multiple universes can be addressed.

How to set a DMX universe

1. Press **Menu** to activate the menus and select *Projector Control* → *DMX* → *Universe*.

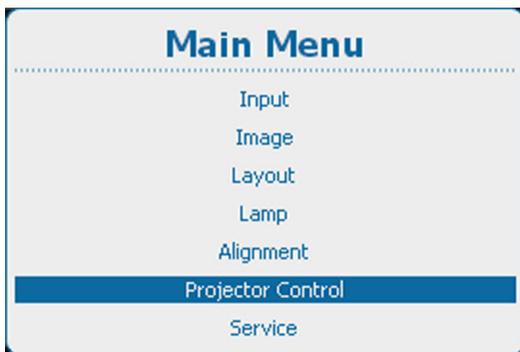


Image 13-65
Main menu, projector control



Image 13-66
Projector control, DMX

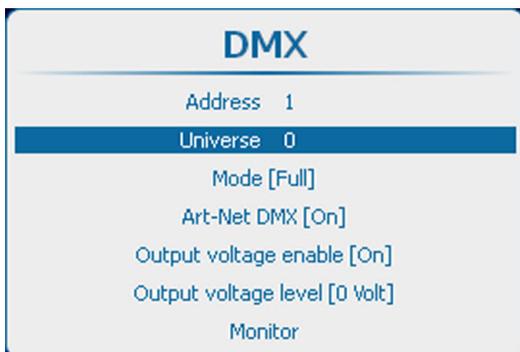


Image 13-67
DMX, universe

2. Press **ENTER** to select.

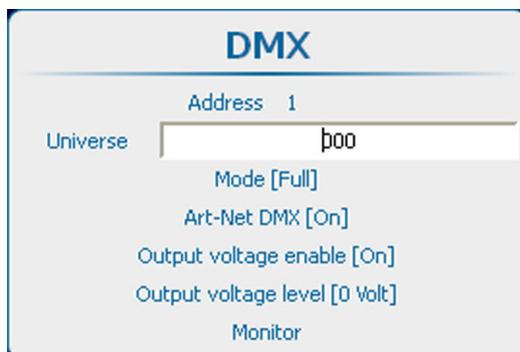


Image 13-68
DMX universe

3. Use the **▲** or **▼** key to change the selected character.
Use the **◀** or **▶** key to select another character.

Note: Digits can be entered with the digit keys on the remote control or the local keypad. When a digit is entered in that way, the next character will be selected automatically.

13.7.3 DMX mode

What can be done ?

3 modes for DMX are available:

- Basic which has currently 2 channels implemented.
- Extended which has currently 10 channels implemented
- Full which has currently 9 channels implemented and a 10th free channel.

Depending on the DMX application the correct mode has to be selected.

How to set the mode

1. Press **Menu** to activate the menus and select *Projector Control* → *DMX* → *Universe*.

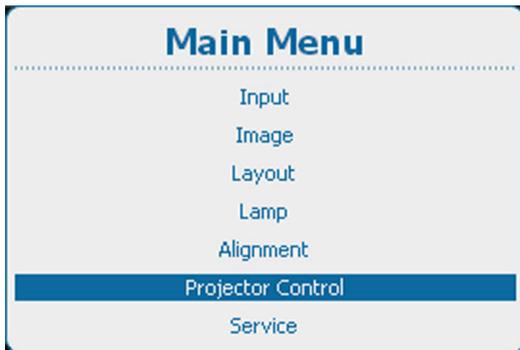


Image 13-69
Main menu, projector control



Image 13-70
Projector control, DMX

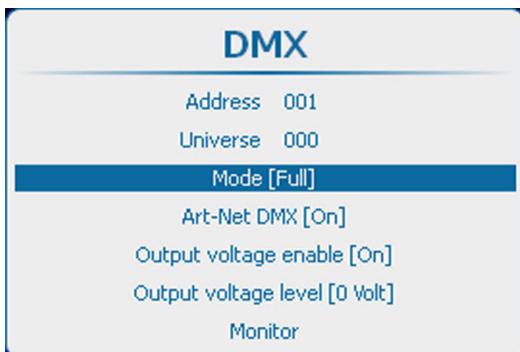


Image 13-71
DMX mode

2. Press **ENTER** to toggle between *[Basic]*, *[Extended]* or *[Full]*.

13.7.4 Art-Net DMX

What can be done ?

DMX can be sent via Ethernet to the projector. This function can be enabled or disabled.

Art-Net DMX [On] : DMX via Ethernet is enabled.

Art-Net DMX [Off] : DMX via Ethernet is disabled.

How to toggle

1. Press **Menu** to activate the menus and select *Projector Control* → *DMX* → *Art-Net DMX*.

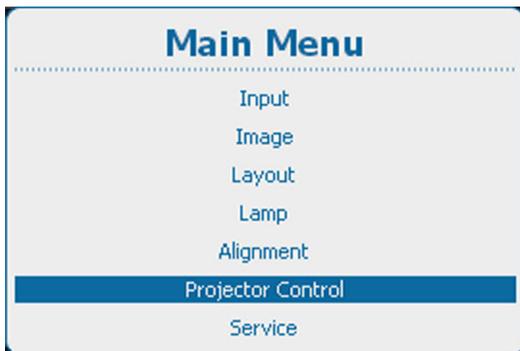


Image 13-72
Main menu, projector control



Image 13-73
Projector control, DMX

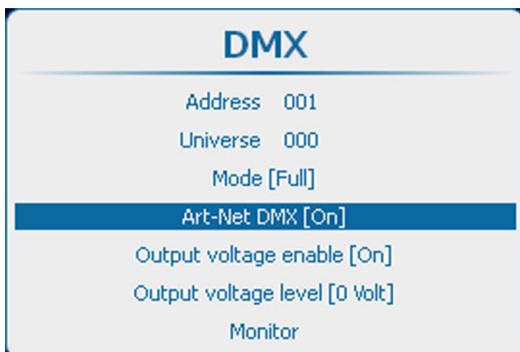


Image 13-74
DMX Art-Net activation

2. Press **ENTER** to toggle between *[On]* and *[Off]*.

13.7.5 Front XLR output voltage control

What can be done ?

The output voltage on the front XLR connector can be enabled or disabled.

The output voltage level can be set to 0V, 9V, 12V or 24V.

DMX Art-Net can also enable the output voltage on the front XLR connector. To avoid that per accident a voltage is activated via DMX Art-Net, set level to 0 V

How to enable or disable

1. Press **Menu** to activate the menus and select *Projector Control* → *DMX* → *Output voltage enable*.

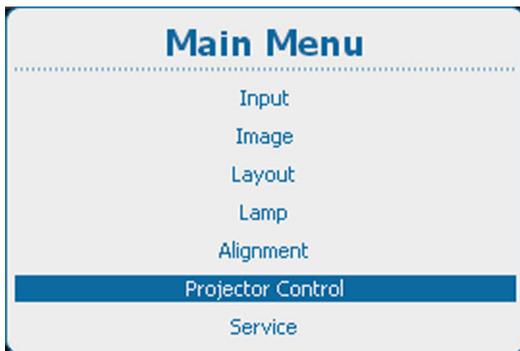


Image 13-75
Main menu, projector control



Image 13-76
Projector control, DMX

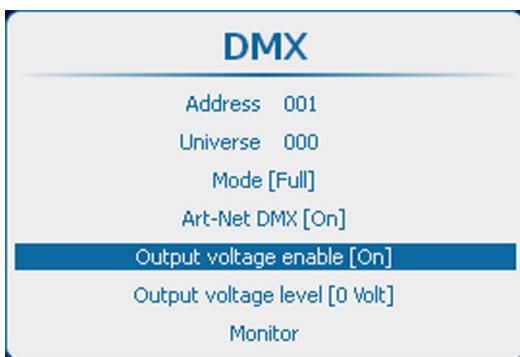


Image 13-77
Front XLR Output voltage enable

2. Press **ENTER** to toggle between *[On]* and *[Off]*.

[On] : Front XLR Output voltage enabled.

[Off] : Front XLR Output voltage disabled.

Output voltage level setup

1. Press **Menu** to activate the menus and select *Projector Control* → *DMX* → *Output voltage level*.

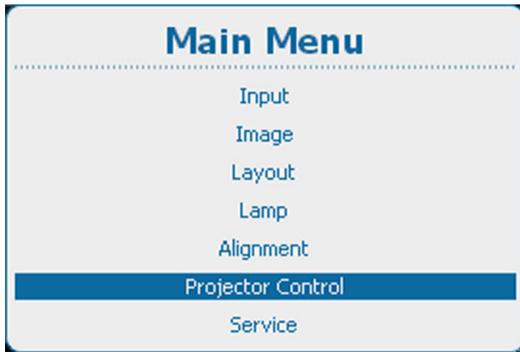


Image 13-78
Main menu, projector control



Image 13-79
Projector control, DMX

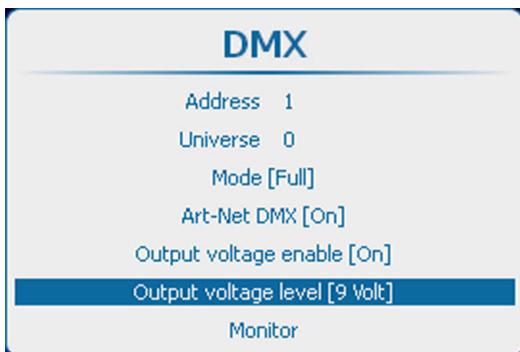


Image 13-80
Front XLR output voltage level

2. Press **ENTER** to toggle between [0 Volt], [9 Volt], [12 Volt] and [24 Volt].

13.7.6 Monitor

What can be done ?

If a DMX device is connected, the settings per channel can be displayed in an on screen menu.

How to start up the monitoring

1. Press **Menu** to activate the menus and select *Projector Control* → *DMX* → *Monitor*.

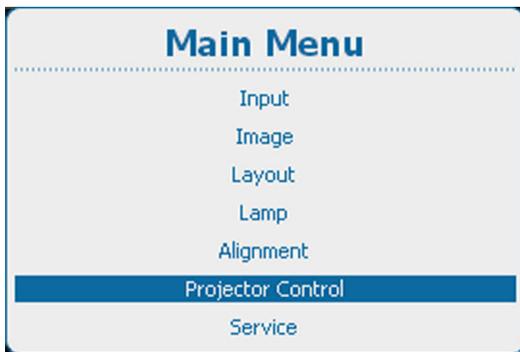


Image 13-81
Main menu, projector control



Image 13-82
Projector control, DMX

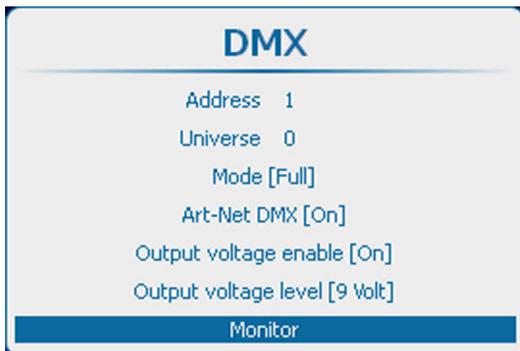


Image 13-83
DMX monitor

2. Press **ENTER** to open the overview list.

| Channel | Function | Value |
|---------|-----------------|-------|
| 1 | Intensity | 255 |
| 2 | Brightness | 128 |
| 3 | Contrast | 128 |
| 4 | Input selection | 88 |
| 5 | Function select | 0 |
| 6 | Motor Go >> | 0 |
| 7 | Motor Go << | 0 |
| 8 | Free | 0 |
| 9 | Lamp Power | 0 |
| 10 | Free | 0 |

Image 13-84
DMX overview list

13.8 Buttons

Overview

- Standby button
- Shortcut keys

13.8.1 Standby button

What can be done ?

When going to standby by pressing the standby button, the following can happen:

- Only lamp will be switched off
- Lamp will be switched off and projector electronics will be powered down after an *after cool* period (ECO standby)

In ECO standby only the microcontroller, communication interface and local (or remote) control are operational. All other electronics are powered down.

How to set

1. Press **Menu** to activate the menus and select *Projector Control* → *Buttons* → *Standby*.

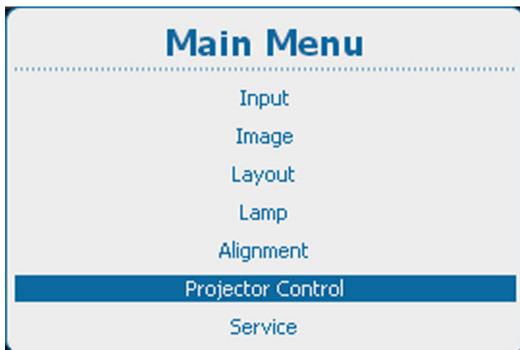


Image 13-85
Main menu, projector control



Image 13-86
Projector control, buttons



Image 13-87
Buttons, standby

2. Press **ENTER** to toggle between *[Lamp only]* and *[Lamp and Power]*.

Lamp only : only lamp will be switched off when Standby is pressed. Other electronics remain powered.

Lamp and Power : lamp will be switched off and projector will be powered down.

13.8.2 Shortcut keys

What can be done?

An overview of the shortcut allocations with the corresponding menu is given. Those printed in bold are allocated.

The allocated shortcut keys can be cleared within this menu.

For the creation of a short cut key, see "Shortcut keys to the menus", page 91

How to clear a shortcut key

1. Press **Menu** to activate the menus and select *Projector Control* → *Buttons* → *Shortcut keys*.

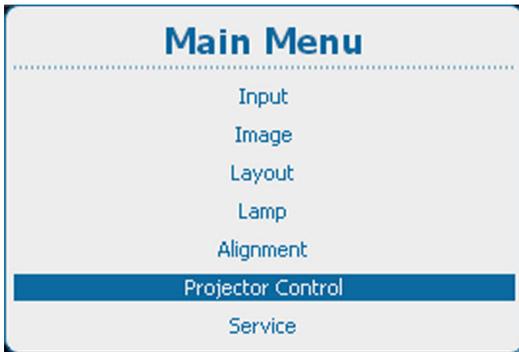


Image 13-88
Main menu, projector control



Image 13-89
Projector control, buttons



Image 13-90
Buttons, shortcut keys

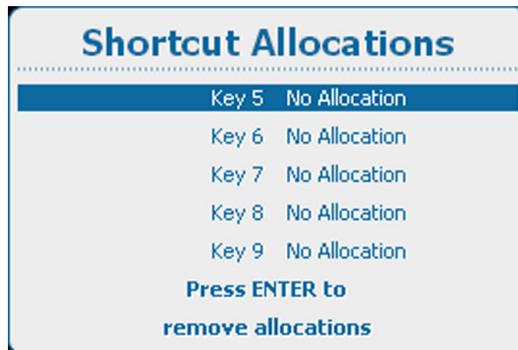


Image 13-91
Shortcut allocations

2. Use the ▲ or ▼ key to select the desired key and press **ENTER** to remove the allocation.

13.9 Menu position

What is possible?

The on screen menu and the bar scale can be positioned on different places on the screen.

The following positions are possible for both

- Right-top
- Right-mid
- Right-bottom
- Mid-top
- Mid-mid
- Mid-bottom
- Left-top
- Left-mid
- Left-bottom

How to change the position

1. Press **Menu** to activate the menus and select *Projector Control* → *Menu Position*.

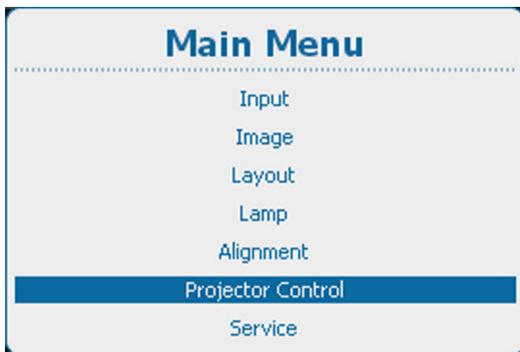


Image 13-92
Main menu, projector control



Image 13-93
Projector control, menu position



Image 13-94
Menu position

2. Use the ▲ or ▼ key to select *Menu position* or *Barscale position* and press **ENTER** to toggle the different possibilities.

13.10 Local LCD

What is possible ?

The back light of the local LCD can be adapted to the needs of the environment.

A time out for the local LCD can be set. If there is nothing done on the local LCD, it can go out after a time out.

How to set up

1. Press **Menu** to activate the menus and select *Projector Control* → *Local LCD*.

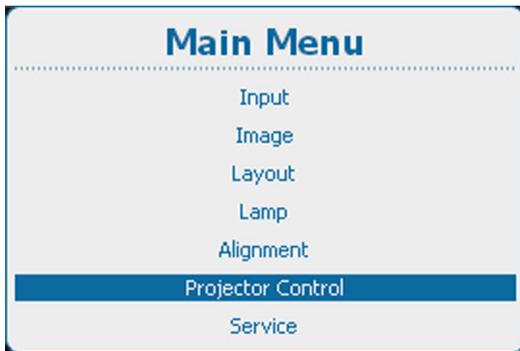


Image 13-95
Main menu, projector control



Image 13-96
Projector control, Local LCD

2. Use the ▲ or ▼ key to select *Back Light*.



Image 13-97
Local LCD, back light

3. Use the ◀ or ▶ key to change the back lighting of the local LCD panel.
4. Use the ▲ or ▼ key to select *Time out*.



Image 13-98
Local LCD, time out

5. Press **ENTER** to toggle between [Off], [10], [30], [60] or [120].

[Off] : LCD panel remains always on.

a value : LCD shut down in x seconds.

13.11 Language selection

What can be done?

The user can change the language of the on screen menus and the local display menus to one of the available languages.

The following languages are available:

- English
- French
- German
- Spanish
- Portuguese
- Japanese
- Chinese
- Korean
- Dutch

All available languages are indicated in the language of the country. The current active language is indicated by checked radio button.

How to change the language

1. Press **Menu** to activate the menus and select *Projector Control* → *Change Language*.

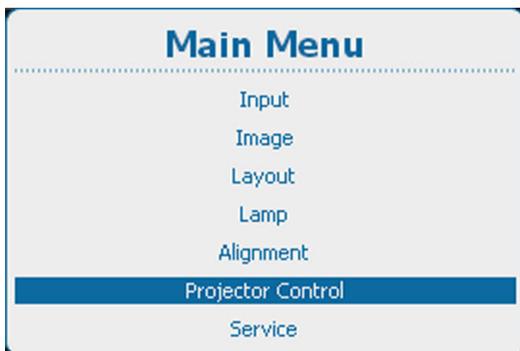


Image 13-99
Main menu, projector control



Image 13-100
Projector control, change language



Image 13-101
Language selection

2. Use the **▲** or **▼** key to select the desired language and press **ENTER** to activate.

The radio button before the active language is checked. The menu content is changed to the new language.

14. SERVICE

Overview

- Service menu overview
- Identification
- Diagnosis
- Internal Service Patterns
- Convergence
- Factory defaults
- USB memory
- Reset Formatter
- Refill mode
- Save Custom Settings
- Special HD Camera mode
- Auto Dimming when over-temperature
- Time and Date

14.1 Service menu overview

Overview table

| Level 1 | Level 2 | Level 3 |
|---------|------------------------------------|----------------------|
| Service | | |
| | Identification | |
| | Diagnostics | Version |
| | | Measurements |
| | | Logging |
| | | Board Id |
| | | Notifications |
| | | Tilt sensor |
| | Internal Service Patterns | PMP IN |
| | | OSD |
| | | PMP OUT |
| | | FIB |
| | Convergence | Blue |
| | | Green on Blue |
| | | Red on Blue |
| | Factory Defaults | |
| | USB Memory | Save custom settings |
| | | Load custom settings |
| | Reset Formatter | |
| | Refill Mode | |
| | Save Custom Settings | |
| | Special HD Camera Mode | |
| | Auto Dimming when Overttemperature | |
| | Time and Date | |

14.2 Identification

What can be seen?

The identification screen shows the general information about the projector.

The following items will be displayed:

- Projector address
- Software version
- Configuration
- Baudrate
- IP address
- MAC address
- Status of the on screen text
- Serial number
- Projector Runtime
- Lamp on runtime
- Remaining Lamp runtime
- Customer Id

How to display the overview

1. Press **Menu** to activate the menus and select *Service* → *Identification*.

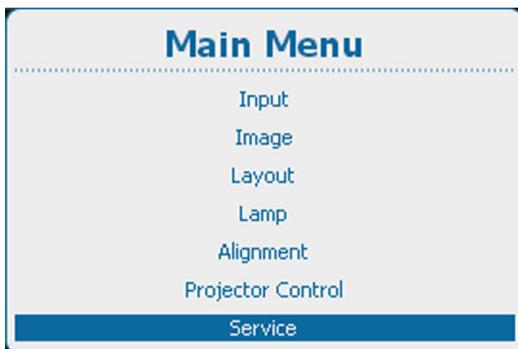


Image 14-1
Main menu, service

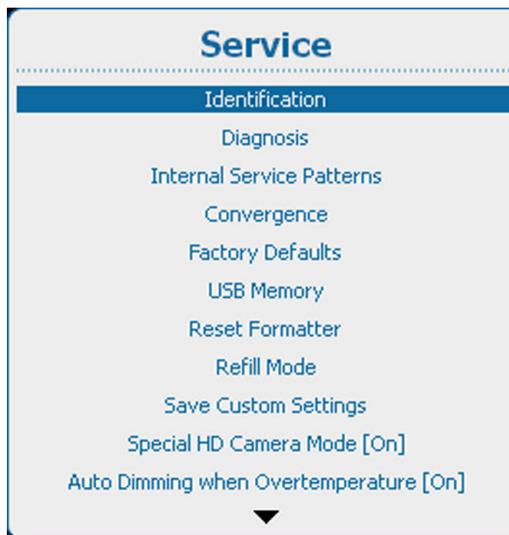


Image 14-2
Service, identification

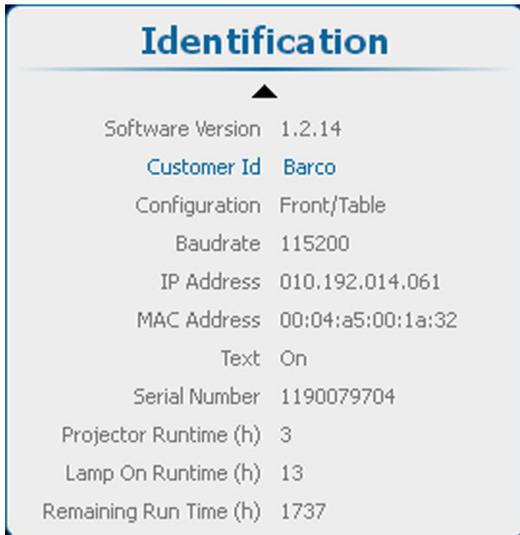


Image 14-3
Identification

2. Use the ▲ or ▼ key to scroll through the menu.

14.3 Diagnosis

What can be seen?

The diagnosis menu gives the possibility to get an overview of the working of the projector.

Overview

- Versions
- Measurements
- Logging
- Board Id
- Notification
- Tilt sensor

14.3.1 Versions

About versions

The table gives an overview between the reference software and the current installed software.

The reference software is the latest correctly installed package.

The current is the updated software (upgrade of downgrade).

Once the complete current is updated with new software, then this current becomes the new reference.

= means that the current software is equal to the latest reference.

> the current has a higher version than the reference software.

< the current has a lower version than the reference software.

How to display an overview

1. Press **Menu** to activate the menus and select *Service* → *Diagnosis* → *Versions*.

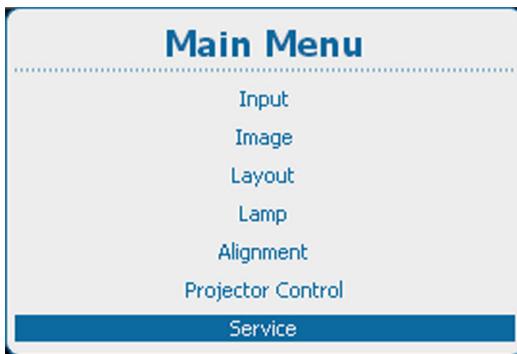


Image 14-4
Main menu, service

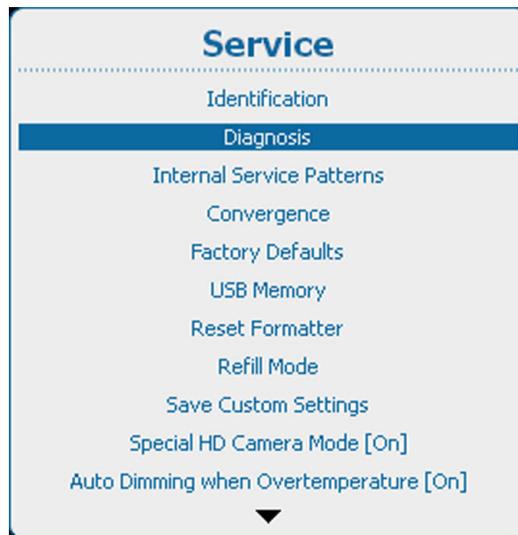


Image 14-5
Service, diagnosis



Image 14-6
Diagnosis, versions

2. Press **ENTER** to display an overview of the versions.

| | Current | < = > | Reference |
|------------------------------|--------------|-------|-----------|
| Hdx update package | | = > | 1.0.1 |
| Main Controller Applications | | | |
| Main ctrl mgr software | 1.0.1 | = | 1.0.1 |
| Main ctrl gui software | 1.0.1 | = | 1.0.1 |
| Send To Socket | 1.4.1 | = | 1.4.1 |
| Broadcast | 3.0.1 | = | 3.0.1 |
| Webserver | 1.0.3 | = | 1.0.3 |
| Main Controller Settings | | | |
| Image files | 2.1.8 | = | 2.1.8 |
| Layout files | 1.0.3 | = | 1.0.3 |
| Color standards files | 1.0.1 | | |
| Guidata | 1.8.1 | = | 1.8.1 |

Image 14-7
Diagnosis, versions list

14.3.2 Measurements

About measurements

Measurements contains the following parts:

- Voltages
- Temperatures
- Fan speeds

All tables are built up in an identical way. The current measured value is surrounded with the low and high error and warning limits. Once one of these values are crossed the threshold an error or warning message is logged or displayed on the local LCD screen.

How to display an overview

1. Press **Menu** to activate the menus and select *Service* → *Diagnosis* → *Measurements*.

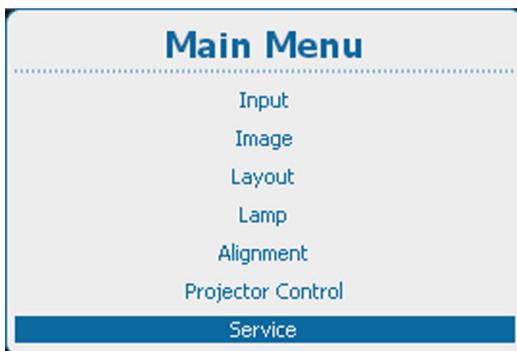


Image 14-8
Main menu, service

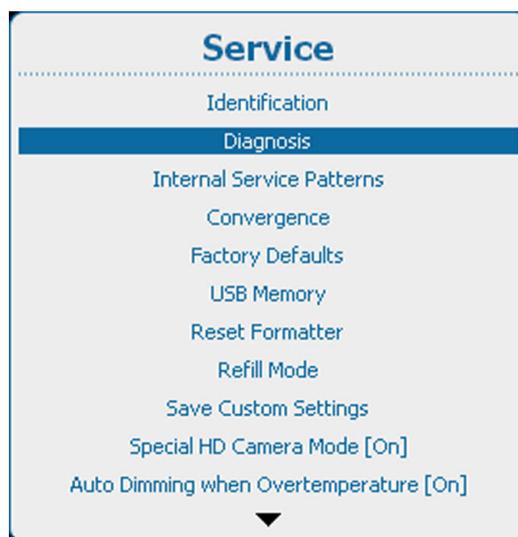


Image 14-9
Service, diagnosis

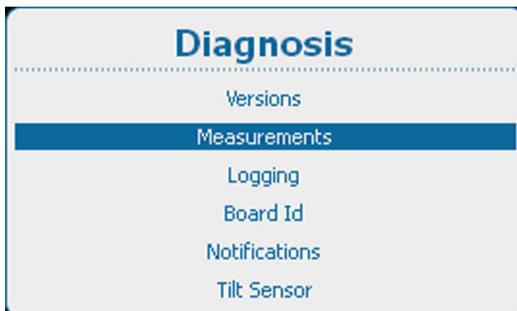


Image 14-10
Diagnosis, measurements

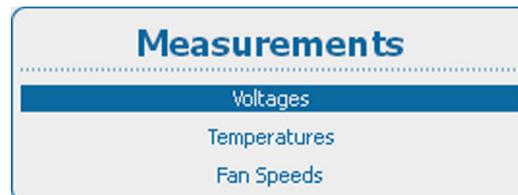


Image 14-11
Measurements, voltages

2. Use the ▲ or ▼ key to select *Voltages* and get an overview of the voltages or to select *Temperatures* to get an overview of the internal temperatures or to select *Fan Speeds* to get an overview of current speeds of the different fans.

| | Low Error | Low Warning | Current | High Warning | High Error |
|-------|-----------|-------------|---------|--------------|------------|
| pump | 10V | 10.5V | 12.2V | 13.5V | 14V |
| 12V | 11V | 11.5V | 12.4V | 13V | 13.5V |
| 28V | 25V | 26V | 28.9V | 30V | 31V |
| 14V | 4V | 4.5V | 13.9V | 15.5V | 16V |
| 2.5V | 2.3V | 2.3V | 2.4V | 2.7V | 2.7V |
| mains | 85V | 90V | 225V | 270V | 275V |

Image 14-12
Overview voltages

| | Low Error | Low Warning | Current | High Warning | High |
|-----------------|-----------|-------------|---------------|--------------|------|
| dmd red back | -15°C | 0°C | 30.5°C | 65°C | 73 |
| dmd green back | -15°C | 0°C | 30.3°C | 65°C | 73 |
| dmd blue back | -15°C | 0°C | 30.4°C | 65°C | 73 |
| ambient outside | -15°C | -5°C | 23.9°C | 43°C | 55 |
| engine air | -15°C | NA | 32.5°C | 60°C | 75 |
| air out | -15°C | NA | 54.7°C | 110°C | 120 |
| powerbox 1 | -15°C | NA | 39.4°C | 85°C | 90 |
| powerbox 2 | -15°C | NA | 42.8°C | 85°C | 90 |
| lamp house | -15°C | NA | 52°C | 110°C | 120 |
| pmp out/scaler | NA | NA | 64.8°C | NA | N |
| pmp in | NA | NA | 66.8°C | NA | N |

Image 14-13
Overview temperatures

| | Low Error | Low Warning | Current | High Warning | High Error |
|-------------|-----------|-------------|----------------|--------------|------------|
| pump | 3000rpm | 3200rpm | 4536rpm | 9000rpm | 10000rpm |
| cold mirror | 500rpm | 700rpm | 3090rpm | 9000rpm | 10000rpm |
| engine | 500rpm | 700rpm | 3466rpm | 9000rpm | 10000rpm |
| radiator A | 500rpm | 700rpm | 1859rpm | 9000rpm | 10000rpm |
| radiator B | 500rpm | 700rpm | 1845rpm | 9000rpm | 10000rpm |
| powerbox | 500rpm | 700rpm | 2264rpm | 9000rpm | 10000rpm |
| lamp | 500rpm | 700rpm | 2059rpm | 9000rpm | 10000rpm |

Image 14-14
Overview fan speeds

14.3.3 Logging

What can be done?

Projector hosts two log files: one managed by the Main controller and one specific for the Lamp power supply.

How to display the logging

1. Press **Menu** to activate the menus and select *Service* → *Diagnosis* → *Logging*.

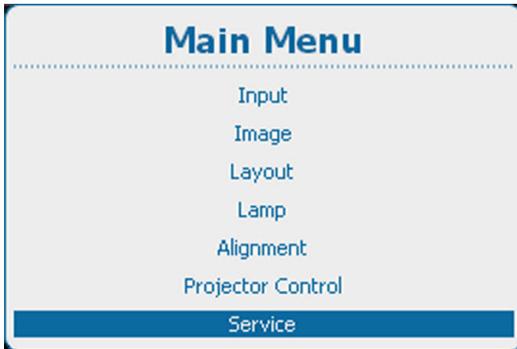


Image 14-15
Main menu, service

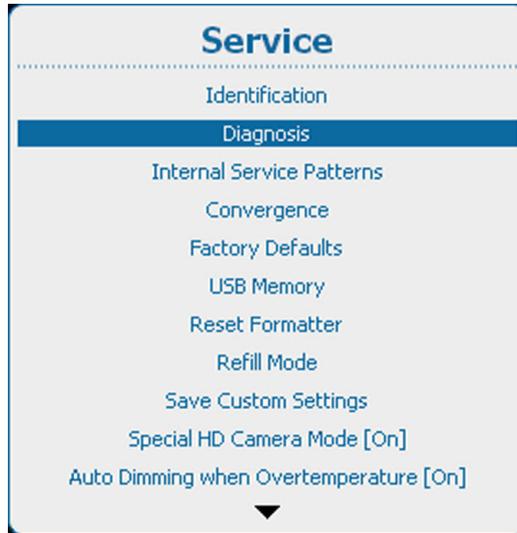


Image 14-16
Service, diagnosis

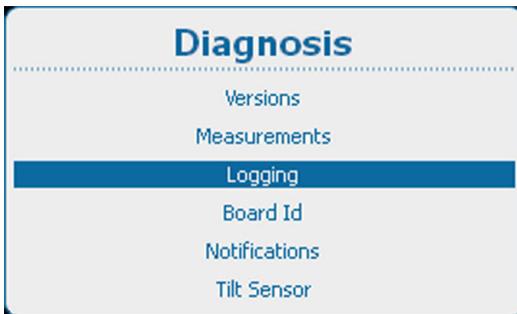


Image 14-17
Diagnosis, logging



Image 14-18
Logging, main controller

2. Use the ▲ or ▼ key to select *Main Controller* to get a logging of the main controller or to select *Lamp Power Supply* to get a logging of the lamp power supply.

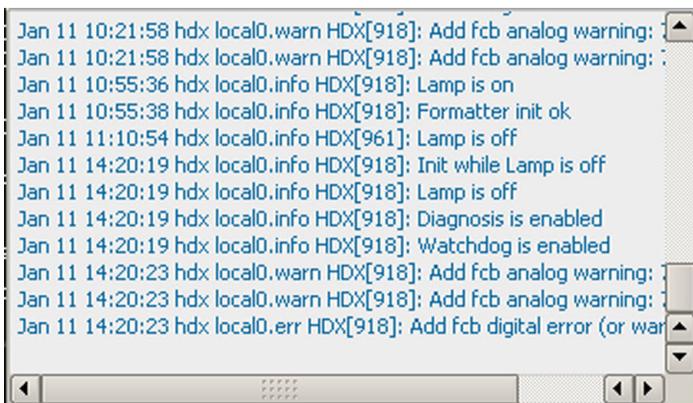


Image 14-19
Main controller logging

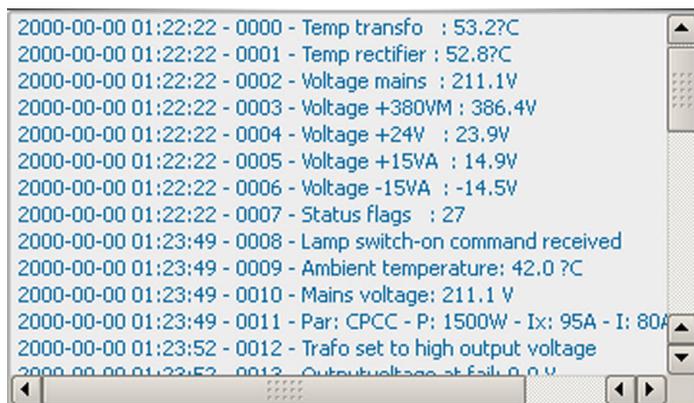


Image 14-20
Lamp power supply logging

14.3.4 Board Id

About Board Id

The board id window gives an overview of the modules with their article number, serial number, etc.

How to get an overview

1. Press **Menu** to activate the menus and select *Service* → *Diagnosis* → *Board Id*.

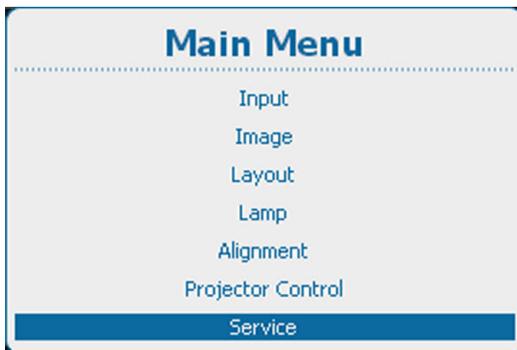


Image 14-21
Main menu, service

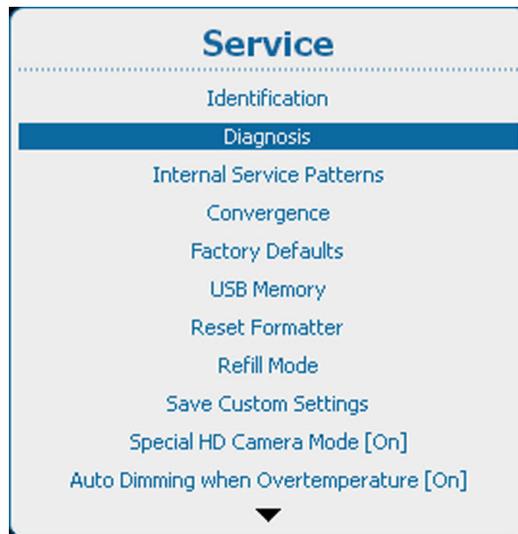


Image 14-22
Service, diagnosis

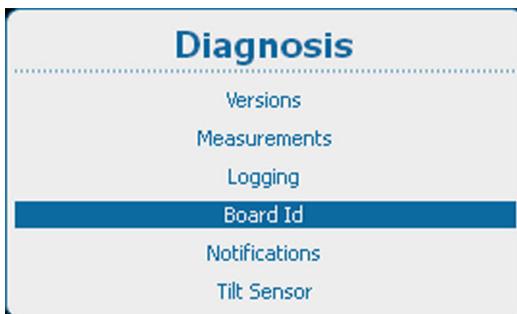


Image 14-23
Diagnosis, board ID

2. Press **ENTER** to display an overview of the board IDs.



Image 14-24
Overview board IDs

14.3.5 Notification

About notifications

Notifications are warnings and errors displayed on the local LCD or on the OSD since power on of the projector. Once powered off, the notification logging is cleared.

How to display

1. Press **Menu** to activate the menus and select *Service* → *Diagnosis* → *Notifications*.

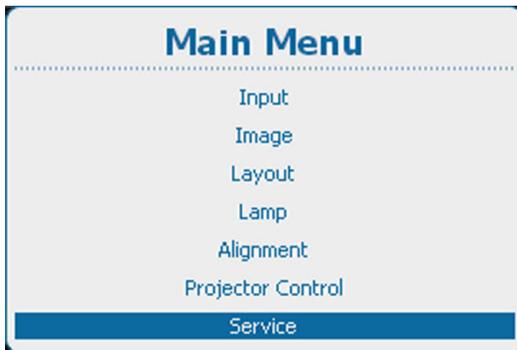


Image 14-25
Main menu, service

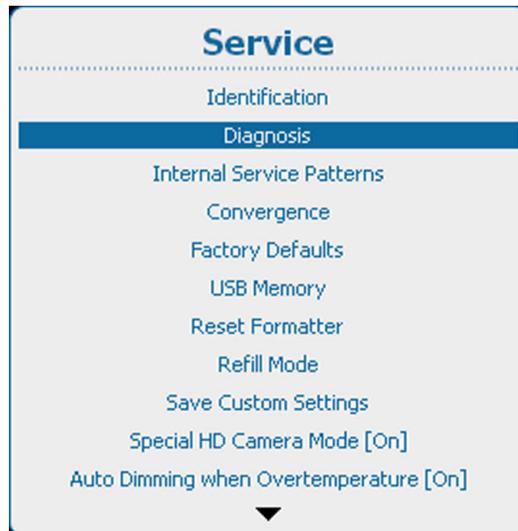


Image 14-26
Service, diagnosis

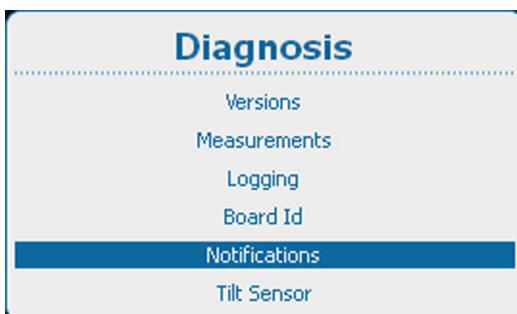


Image 14-27
Diagnosis, notifications

2. Press **ENTER** to display the notification list.

14. Service

| Time Stamp | Severity | Description |
|--------------------------|----------|--|
| Tue Mar 15 11:44:32 2011 | Error | Board id: warp not accessible |
| Tue Mar 15 11:44:32 2011 | Error | Board id: light sensor module read error |
| Tue Mar 15 11:44:32 2011 | Error | Board id: lamp info module read error |
| Tue Mar 15 11:44:31 2011 | Error | Board id: display module not accessible |
| Tue Mar 15 11:44:31 2011 | Error | Board id: power backplane not accessible |
| Tue Mar 15 11:44:31 2011 | Warning | Board id: communication interface unknown format |
| Tue Mar 15 11:44:31 2011 | Warning | Board id: pmp unknown format |
| Tue Mar 15 11:44:31 2011 | Warning | Board id: input 4 empty |
| Tue Mar 15 11:44:31 2011 | Warning | Board id: input 3 empty |
| Tue Mar 15 11:44:31 2011 | Warning | Board id: input 2 empty |

Image 14-28
Notification overview list

14.3.6 Tilt sensor

What is possible?

The built-in tilt sensor can be read out to see if the projector is used in an allowed position. The status field indicates whether the rotation of the projector is normal or abnormal.

Using a projector with an abnormal rotation can severely damage the lamp.

How to check the tilt sensor

1. Press **Menu** to activate the menus and select *Service* → *Diagnosis* → *Tilt sensor*.

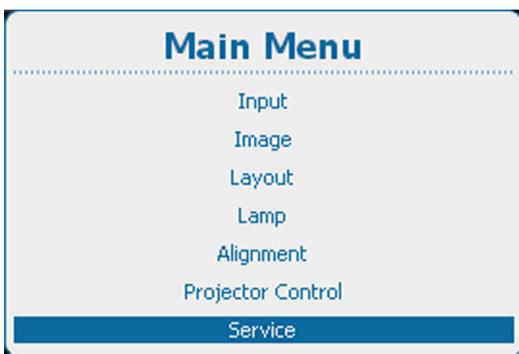


Image 14-29
Main menu, service

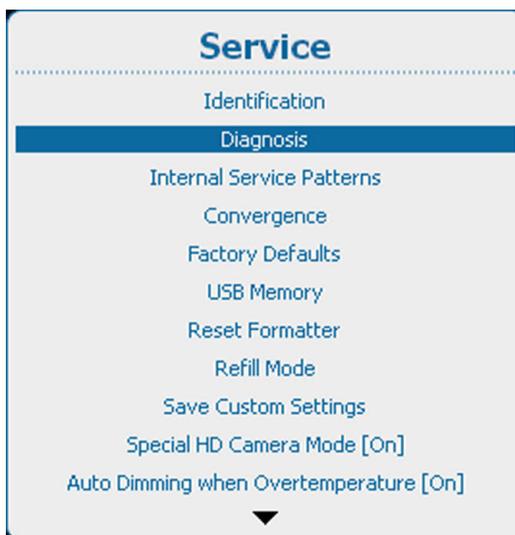


Image 14-30
Service, diagnosis

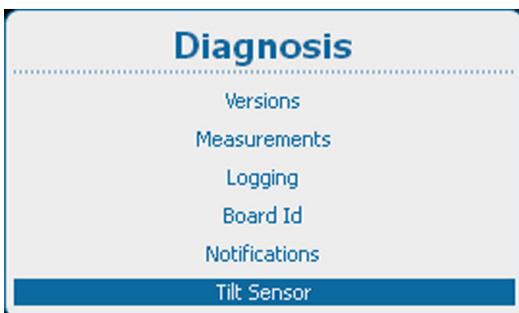


Image 14-31
Diagnosis, tilt sensor

2. Press **ENTER** to read out the tilt sensor.

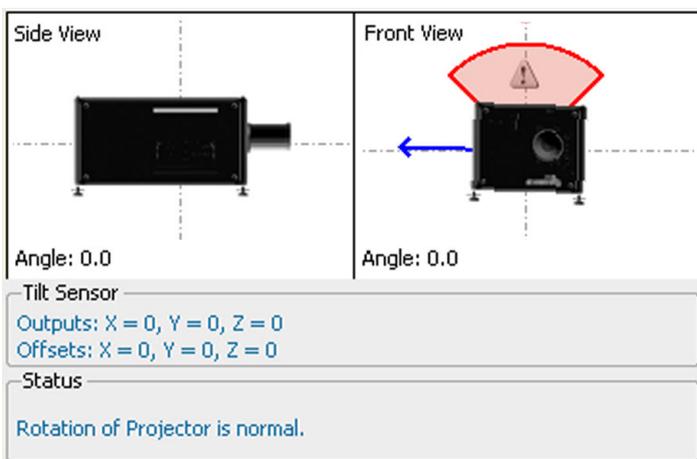


Image 14-32
Tilt sensor output

14. Service

The rotation of the projector is visually displayed. Coordinates of the tilt sensor and the offset from the normal position are given in the tilt sensor pane.

The status pane indicates if the projector is used with an allowed rotation.

14.4 Internal Service Patterns

How to select

1. Press **Menu** to activate the menus and select *Service* → *Internal Service Patterns*.

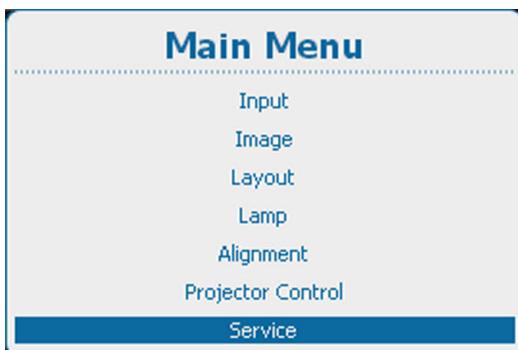


Image 14-33
Main menu, service

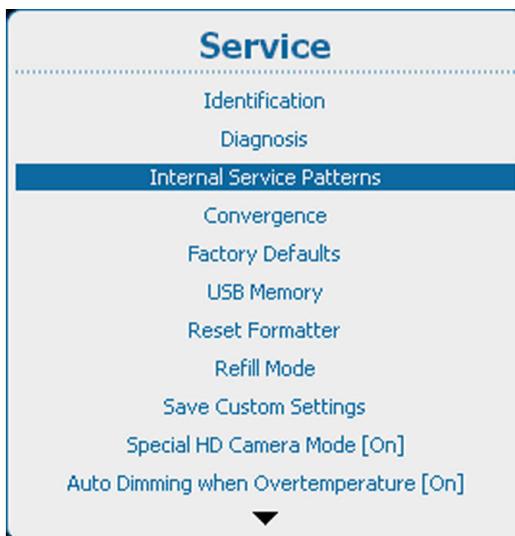


Image 14-34
Service, Internal service patterns

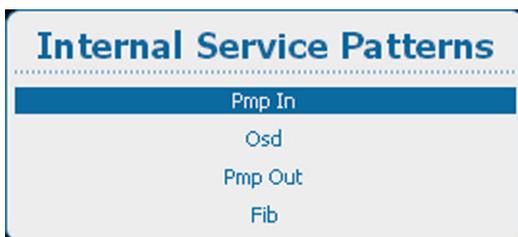


Image 14-35
Internal service patterns, Pmp In

2. Use the **▲** or **▼** key to select the desired internal service pattern and press **ENTER** to open a selection menu.

Pmp In patterns

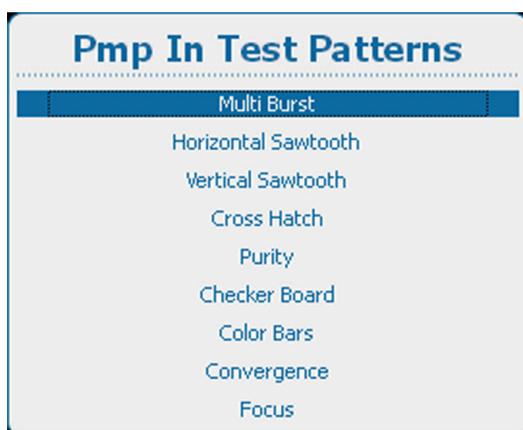


Image 14-36
Pmp In test patterns

To change the options for the selected pattern, use the **▶** key to open these options. The number of options can change for the different patterns.



Image 14-37
Pmp In test pattern options

Use the ▲ or ▼ key to select an option and press **ENTER** to select. The checkbox in front of that item will be checked.

Osd patterns

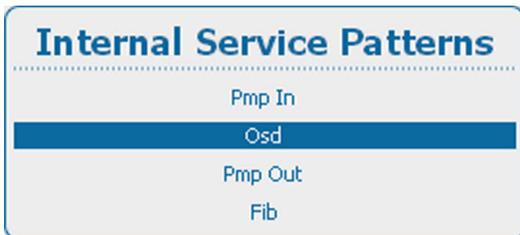


Image 14-38
Internal service patterns, OSD

Press **ENTER** to display the list of possible patterns.

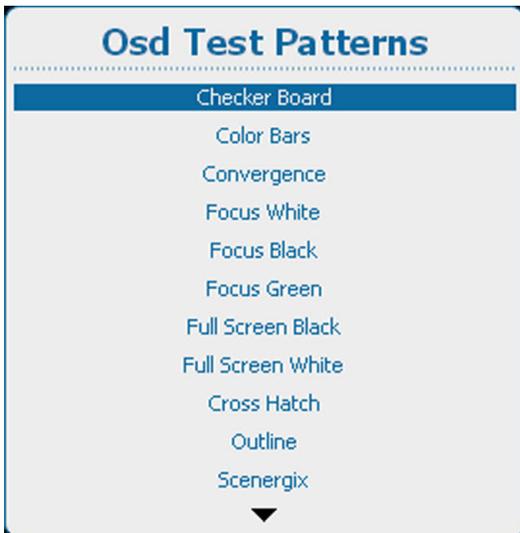


Image 14-39
OSD Test patterns

Pmp out patterns

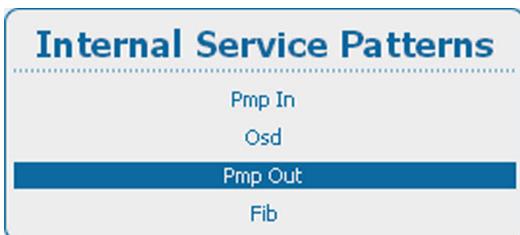


Image 14-40
Internal service patterns, Pmp Out

Press **ENTER** to display the list of possible patterns.

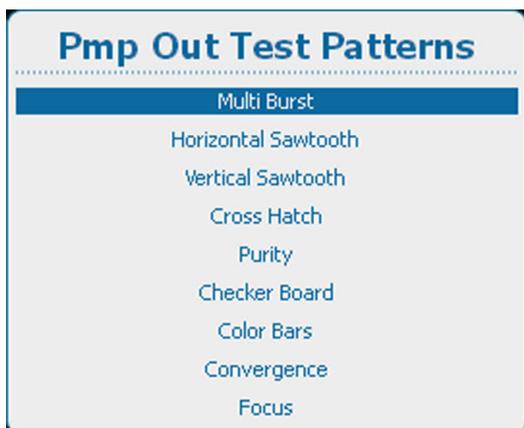


Image 14-41
Pmp out test patterns

To change the options for the selected pattern, use the **▶** key to open these options. The number of options can change for the different patterns.



Image 14-42
Pmp out internal service test patterns options

Fib patterns



Image 14-43
Internal service patterns, Fib

Press **ENTER** to display the list of possible patterns.

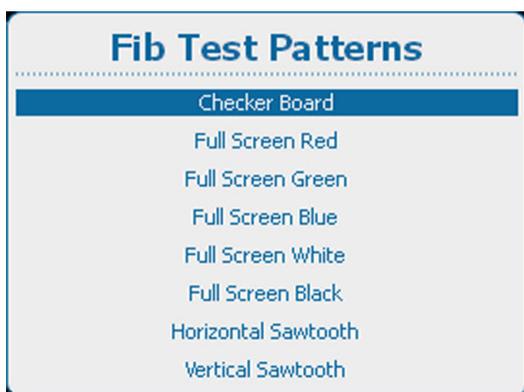


Image 14-44
Fib test patterns

14.5 Convergence

What can be done?

The convergence patterns can be used to check the convergence alignment of red, green and blue. If there is a misalignment of at least one 1 pixel, an electronic realignment is possible.

Mechanical realignment of the convergence can only be done by a qualified service technician.

How to display the convergence settings

1. Press **Menu** to activate the menus and select *Service* → *Convergence*.

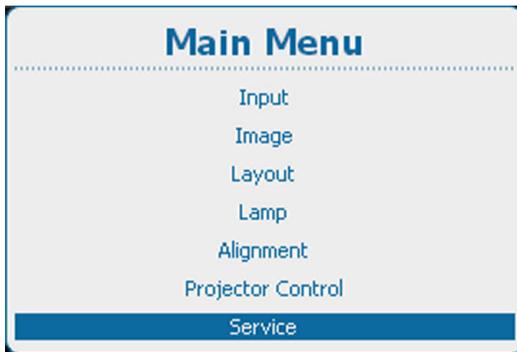


Image 14-45
Main menu, service

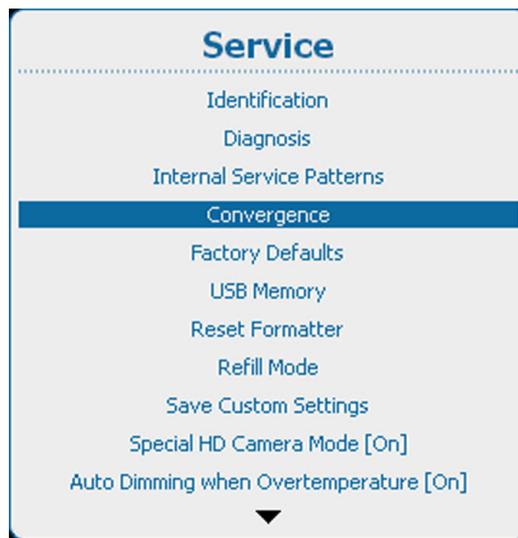


Image 14-46
Service, convergence



Image 14-47
Convergence pattern

2. Use the ▲ or ▼ key to select a pattern.
3. Press **ENTER** to start the adjustment.



Image 14-48
Convergence adjustment

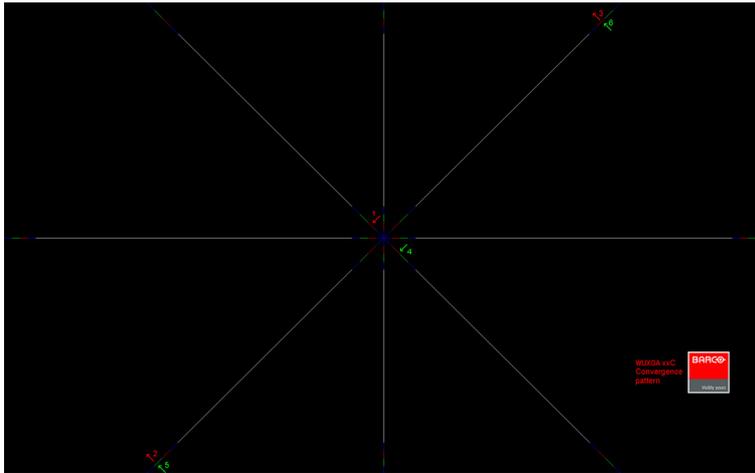


Image 14-49

4. Use the convergence adjustments buttons on the light processor to adjust the convergence.

Adjust until the crossing of the center Green (Red) convergence pattern coincide with the diagonal line of the center Blue convergence pattern.

14.6 Factory defaults

What can be done?

All settings of the projector will be set to the original factory settings. All user settings are erased with this operation.

How to return to the factory defaults

1. Press **Menu** to activate the menus and select *Service* → *Factory defaults*.

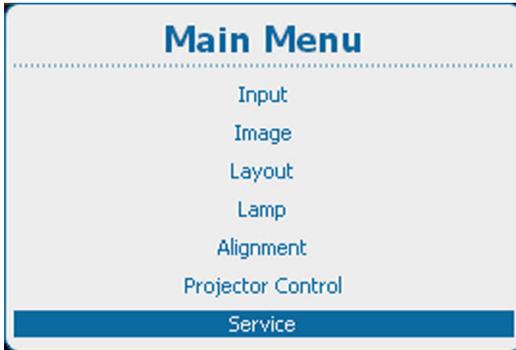


Image 14-50
Main menu, service

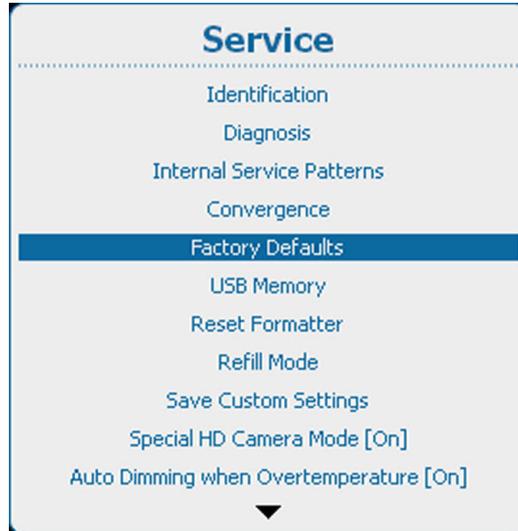


Image 14-51
Service, factory defaults



Image 14-52
Factory defaults, settings

By default the following settings are excluded

- IP address
- Serial settings
- DMX settings
- Electronic convergence

2. If you want to restore also one of the items in the list, check the check box in front of that item.
Select **Yes** to restore the factory settings.
Select **No** to stop the restore process.

14.7 USB memory

Purpose

2 functions are available

- Custom settings can be saved on a USB stick.
- A selection of saved settings can be (down)loaded via an USB stick on the projector.

How to save custom settings

1. Press **Menu** to activate the menus and select *Service* → *USB Memory*.

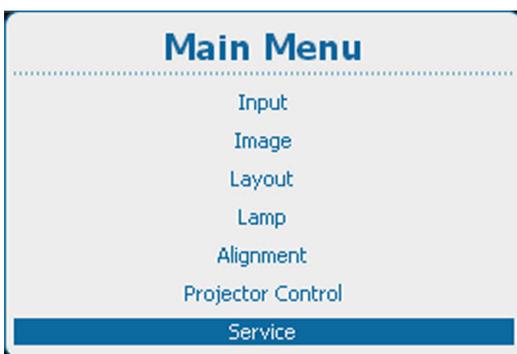


Image 14-53
Main menu, service

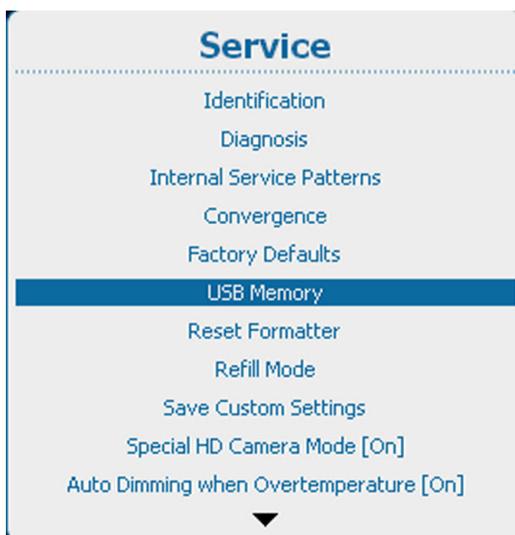


Image 14-54
Service, USB memory



Image 14-55
USB memory selection

2. Select *Save Custom Settings* and press **ENTER** to download this set.

Note: Make sure a formatted USB stick is inserted in the USB connector.

When no USB stick is available, a message will be shown: No USB device is found.

The name of the custom settings files contains the serial number of the projector from which it is downloaded.

Load custom settings

1. Press **Menu** to activate the menus and select *Service* → *USB Memory*.

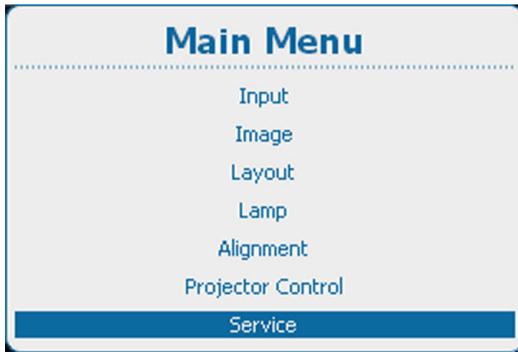


Image 14-56
Main menu, service

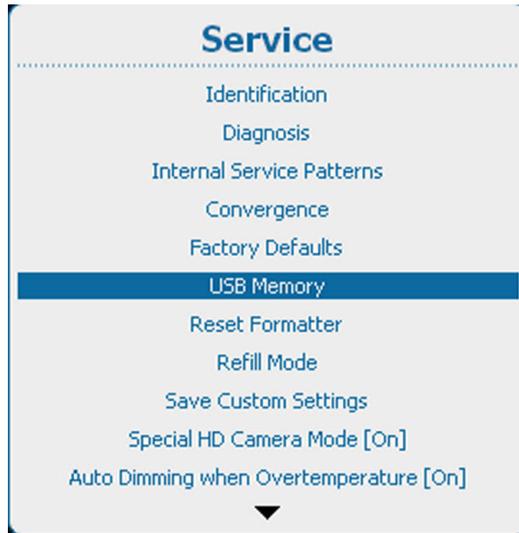


Image 14-57
Service, USB memory



Image 14-58
USB memory selection

2. Select *Load Custom Settings* and press **ENTER**.
An overview of the available sets of custom settings is given.

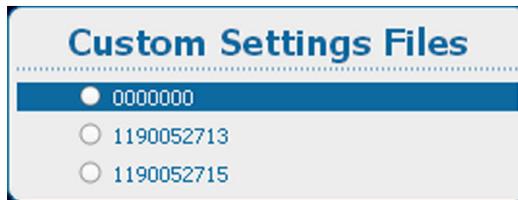


Image 14-59
Custom settings files

3. Select a set and press **ENTER** to upload this set.

14.8 Reset Formatter

Why and when

A reset formatter is necessary when e.g. a color is missing, artifacts are visible in the image or image is frozen and the formatter test patterns cannot be displayed.

How to reset

1. Press **Menu** to activate the menus and select *Service* → *Reset Formatter*.

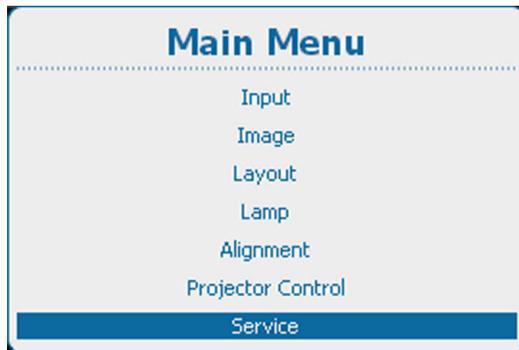


Image 14-60
Main menu, service

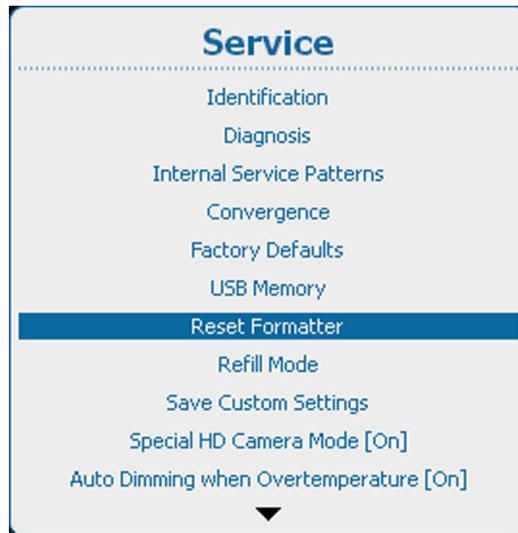


Image 14-61
Service, reset formatter.

2. Press **ENTER** to select. Use the **▲** or **▼** key to select *Yes*. or *No* and press **ENTER**.



Image 14-62
Reset formatter

If you want to reset the formatter, select *Yes*.

If you do not want to reset the formatter, select *No*.

14.9 Refill mode



Before selecting Refill mode, take first all preparations necessary to refill the cooling circuit.

What can be done?

When all necessary preparations are taken, the refill mode activates automatically the refill process.

For more information about the refill process, consult the Service manual.

How to start the refill mode

1. Press **Menu** to activate the menus and select *Service* → *Refill Mode*.

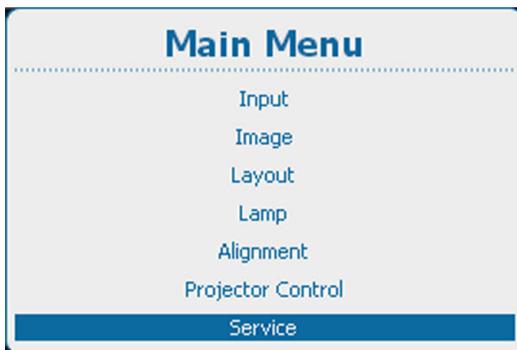


Image 14-63
Main menu, service

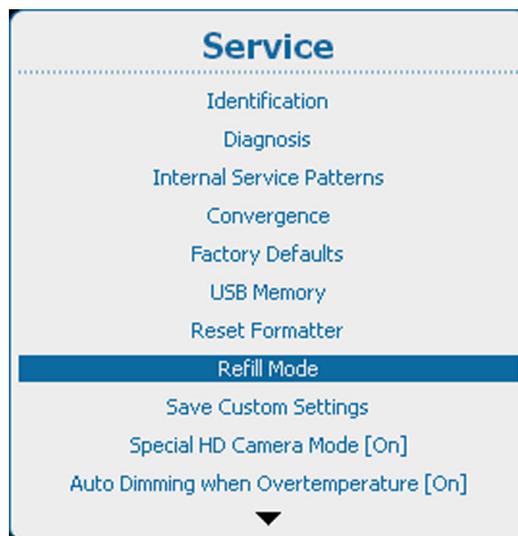


Image 14-64
Service, refill mode

2. Press **ENTER** to select. Use the **▲** or **▼** key to select *Yes*. or *No* and press **ENTER**.

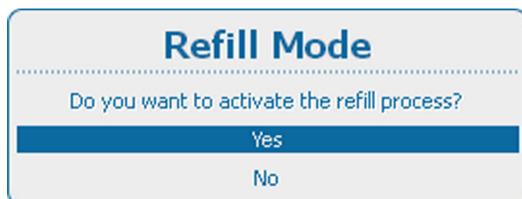


Image 14-65

If you want to start the refill mode, select *Yes*.

If you do not want to start the refill mode, select *No*.

14.10 Save Custom Settings

What can be done ?

The current custom settings can be saved to internal backup device in the same way as it would be done when the projector lamp was switched off.

When settings are changed when the lamp is off, a manual Save custom settings must be executed to save the changes.

When the message *Saving data* is displayed, never switch off the projector.

How to save

1. Press **Menu** to activate the menus and select *Service* → *Save Custom Settings*.

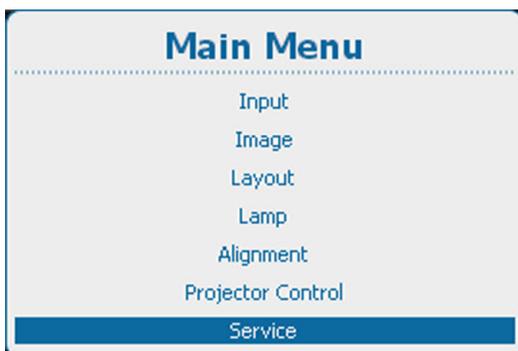


Image 14-66
Main menu, service

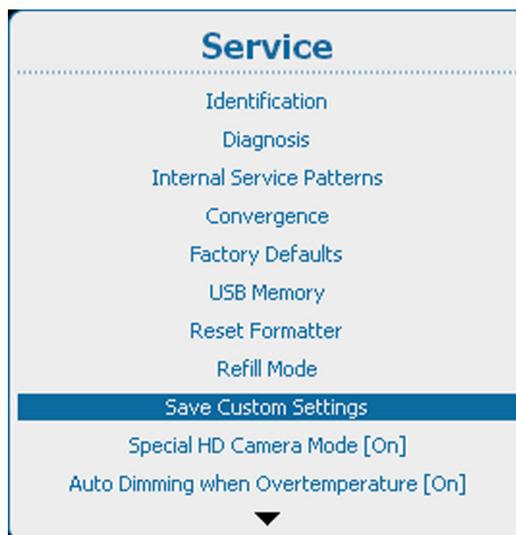


Image 14-67
Service, save custom settings

2. Use the **▲** or **▼** key to select **Yes** and press **ENTER**.



Image 14-68
Save custom settings, question

14.11 Special HD Camera mode

What can be done ?

"Special HD Camera mode" enables special sequences for the DMD's to support specific sources such as the Thompson Grass Valley Worldcam. It shouldn't be used in any other circumstances as it would cause image flicker and dimmed images with normal sources.

Default position : [Off]

How to switch

1. Press **Menu** to activate the menus and select *Service* → *Special HD Camera Mode*.

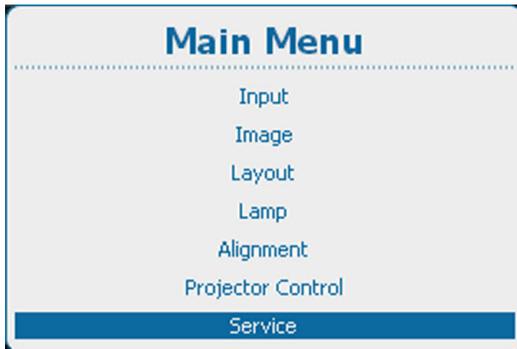


Image 14-69
Main menu, service

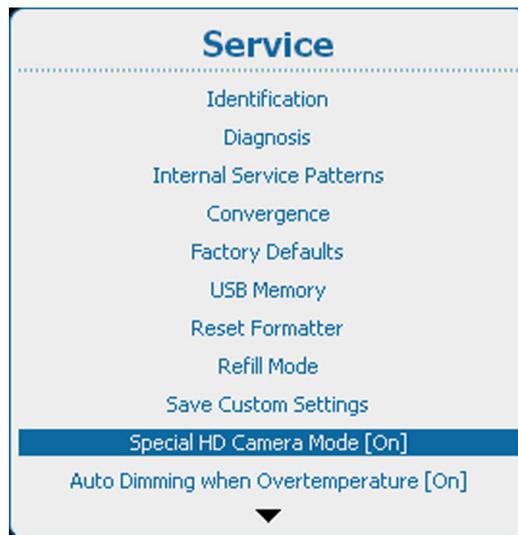


Image 14-70
Service, special HD camera mode

2. Press **ENTER** to toggle between [On] and [Off].

14.12 Auto Dimming when over-temperature

What can happen?

When an over-temperature is detected, the projector starts dimming the lamp so that the projector can cool down.

How to activate - deactivate

1. Press **Menu** to activate the menus and select *Service* → *Auto Dimming when Overtemperature*.

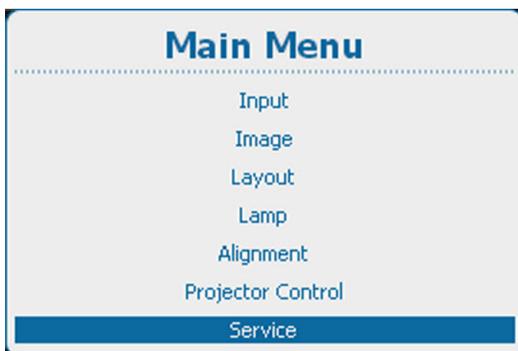


Image 14-71
Main menu, service

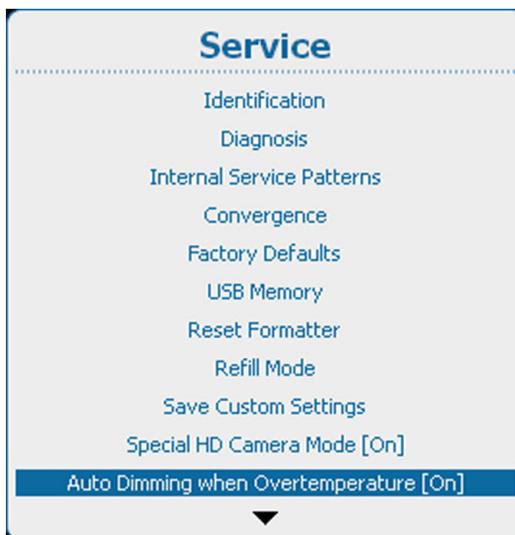


Image 14-72
Service, auto dimming when over-temperature

2. Press **ENTER** to toggle between *[On]* and *[Off]*.

[On] : Dimming is started when an over-temperature is detected.

[Off] : No dimming is started when over-temperature is detected.

14.13 Time and Date

How to set

1. Press **Menu** to activate the menus and select *Service* → *Time and Date*.

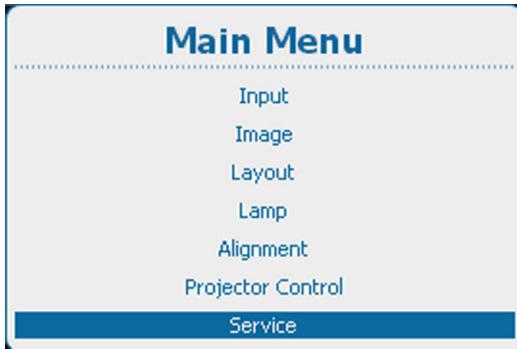


Image 14-73
Main menu, service

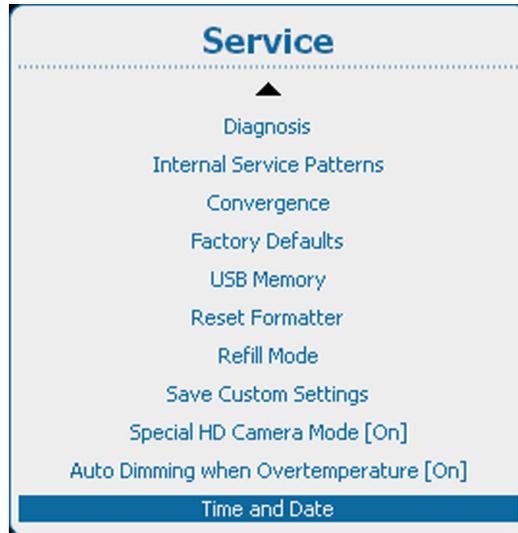


Image 14-74
Service, time and date

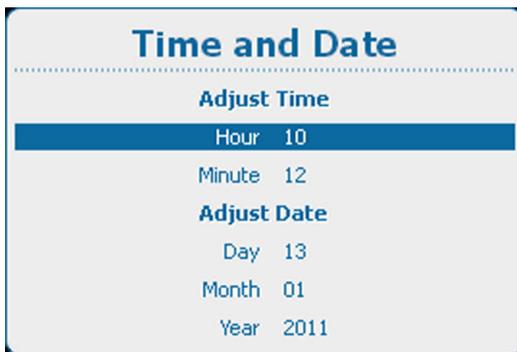


Image 14-75
Date and time set up

2. Use the **▲** or **▼** key to select *Hour*, *Minute*, *Day*, *Month* or *Year* and press **ENTER** to select.
3. Use the **▲** or **▼** key to change the selected character.
Use the **◀** or **▶** key to select another character.
Note: *Digits can be entered with the digit keys on the remote control or the local keypad. When a digit is entered in that way, the next character will be selected automatically.*
4. Press **ENTER** to accept the changes.
Repeat for other values in the same way.

15. MAINTENANCE

About this chapter

This chapter contains general maintenance procedures which can be easily performed by the operator of the projector.

Overview

- Cleaning the lens
- Cleaning the exterior of the projector

15.1 Cleaning the lens



To minimize the possibility of damage to optical coatings, or scratches to lens surfaces, we have developed recommendations for cleaning. **FIRST**, we recommend you try to remove any material from the lens by blowing it off with clean, dry deionized air. **DO NOT** use any liquid to clean the lenses.

Necessary tools

Toraysee™ cloth (delivered together with the lens kit). Order number : R379058.

How to clean the lens ?

1. Always wipe lenses with a CLEAN Toraysee™ cloth.
 2. Wipe lenses in a one single direction.
Warning: *Do not wipe back and forwards across the lens surface as this tends to grind dirt into the coating.*
 3. Do not leave the cleaning cloth in either an open room or lab coat pocket, as doing so can contaminate the cloth.
 4. If smears occur when cleaning lenses, replace the cloth. Smears are the first indication of a dirty cloth.
-



CAUTION: Do not use fabric softener when washing the cleaning cloth or softener sheets when drying the cloth.

Do not use liquid cleaners on the cloth as doing so will contaminate the cloth.



Other lenses can also be cleaned safely with this Toraysee™ cloth.

15.2 Cleaning the exterior of the projector

How to clean the exterior of the projector ?

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

16. SERVICING

About this chapter

This chapter contains general servicing procedures like lamp house replacement, input unit replacement etc. These procedures may only be performed by **qualified technical service personnel**.

Overview

- Inserting an input module
- Removal of the lamp house
- Installation of the lamp house
- Removal of the front cover
- Mounting the front cover
- Removal of the lamp cover
- Mounting the lamp cover
- Replacement of the high density dust filter
- Remove and clear metal front filter

Extra service information

Extra service information for qualified service technicians can be found on Barco's Partnerzone (URL:<http://my.barco.com>). Registration is necessary.

If you are not yet registered, click on Partnerzone registration and follow the instructions. With the created login and password, it is possible to enter the partnerzone where you can find extra service information about the projector.

16.1 Inserting an input module



WARNING: Switch off the projector and unplug the power cord before starting the procedure.

How to insert

1. Loosen both screws of the dummy cover plate (1).

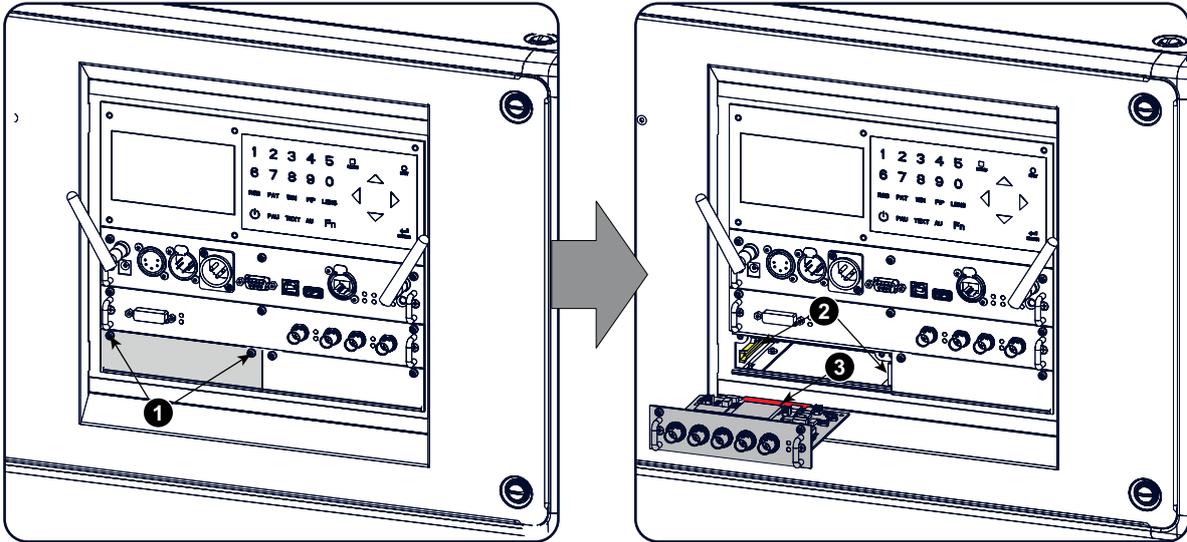


Image 16-1
Insert input module

2. Take off the dummy cover plate.
3. Insert the new input module in its compartment.
Make sure the module seats in its sliders (2).
Pull in the module until the contacts (3) are fully inserted into the connectors.
4. Fixate both fixation screws.

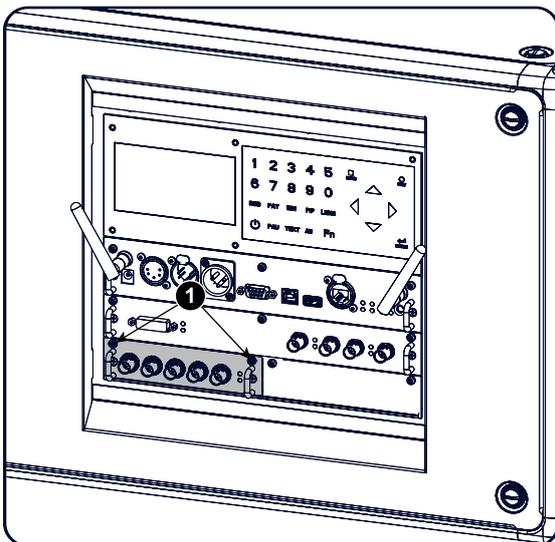


Image 16-2
Fixate input

16.2 Removal of the lamp house



WARNING: Switch off the projector and unplug the power cord before starting the procedure.

Necessary tools

Flat screwdriver

How to remove

1. Remove the lamp cover on the input side, see "Removal of the lamp cover", page 318.
2. Release the 3 spring lock screws.

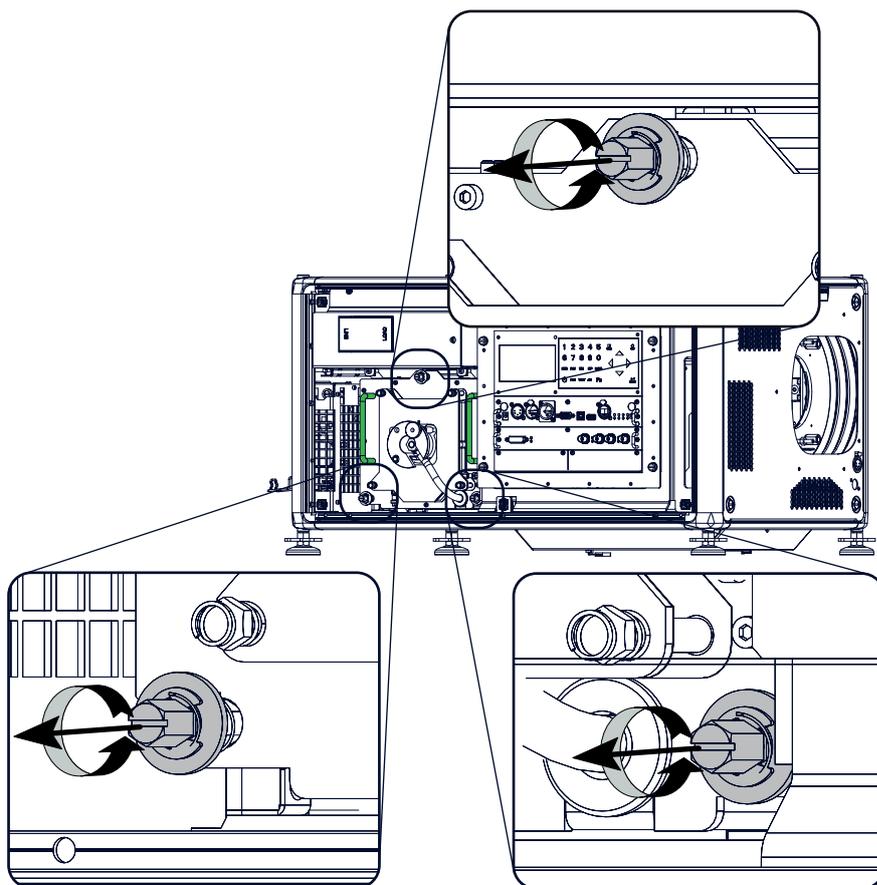


Image 16-3
Lamp house, captive screws

3. Take the lamp house by both handles and pull it out.

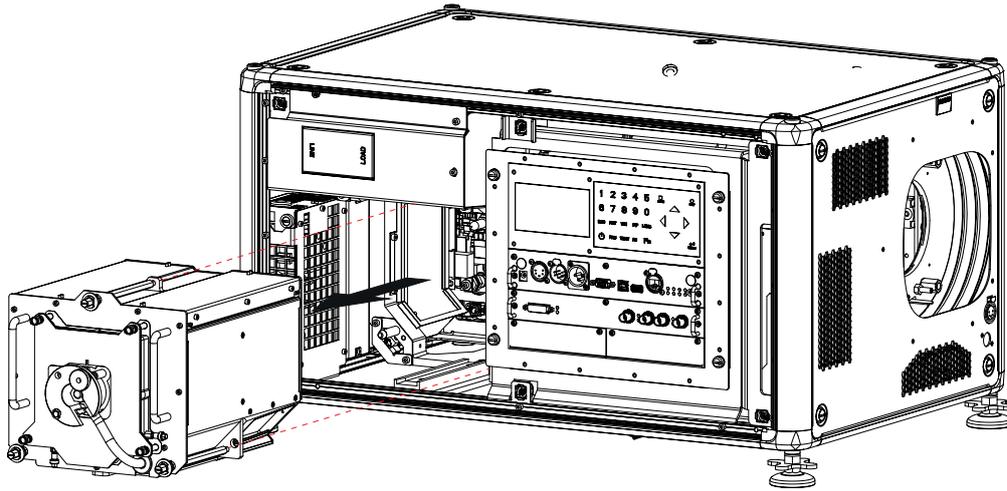


Image 16-4
Lamp house, removal

16.3 Installation of the lamp house



WARNING: Switch off the projector and unplug the power cord before starting the procedure.

Necessary tools

Flat screwdriver

How to install

1. Take the lamp house by its handles and gently slide the lamp house into its socket. Note that the compartment is provided with a guide (1) to position the lamp house correctly.

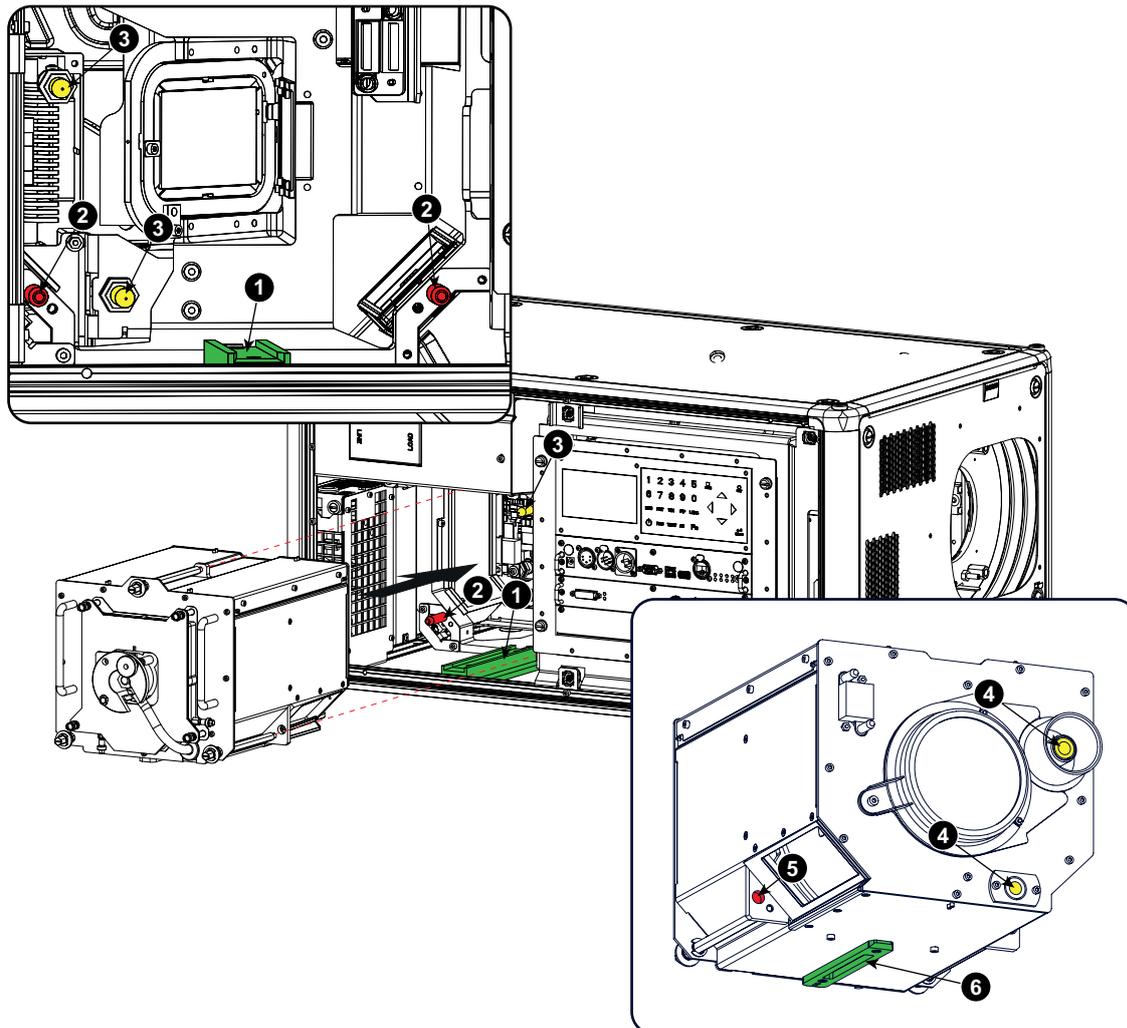


Image 16-5
Insert lamp house

2. Push the lamp house forward until it slides fully into the projector. Positioning pins (2) must match the holes (5) in the lamp house.
3. Secure this position by fastening the 3 spring lock screws.
4. Reinstall the lamp cover of the projector.



While starting up the projector, the electronics detect if a lamp is installed. If no lamp is installed, it is not possible to start up the projector.

16.4 Removal of the front cover



WARNING: Switch off the projector and unplug the power cord before starting the procedure.

Necessary tools

7 mm flat screw driver

How to remove

1. Remove the lens. See "Lens removal", page 38.
2. Remove the rubber dust ring from the lens holder.

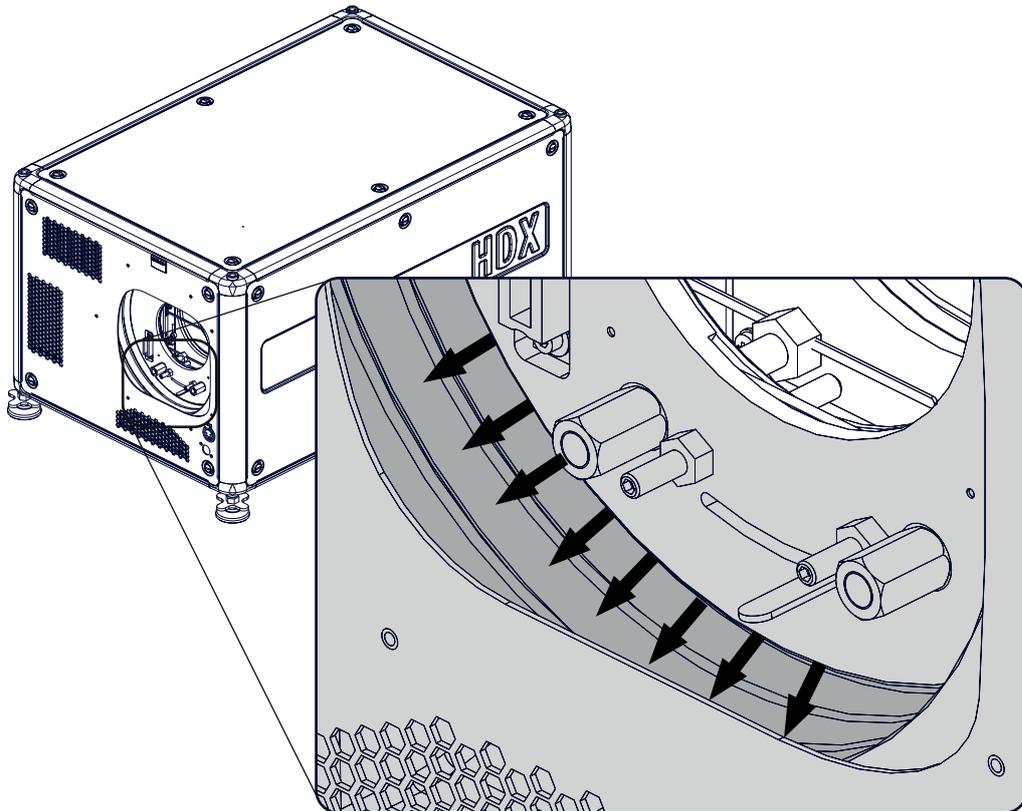


Image 16-6
Dust ring removal

3. Release the 4 captive screws (1).

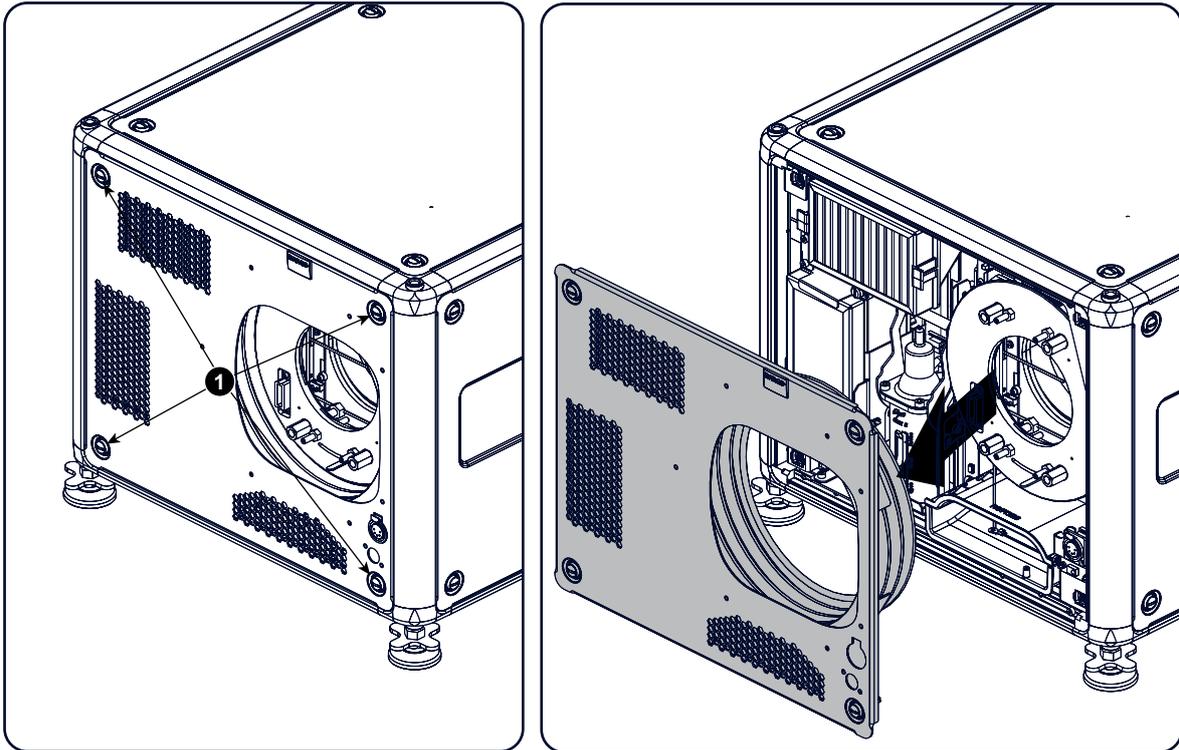


Image 16-7
Front cover removal

4. Take off the front cover.

16.5 Mounting the front cover



WARNING: Switch off the projector and unplug the power cord before starting the procedure.

Necessary tools

7 mm flat screw driver

How to mount

1. Place the front cover with the rubber dust facing the projector on its place.

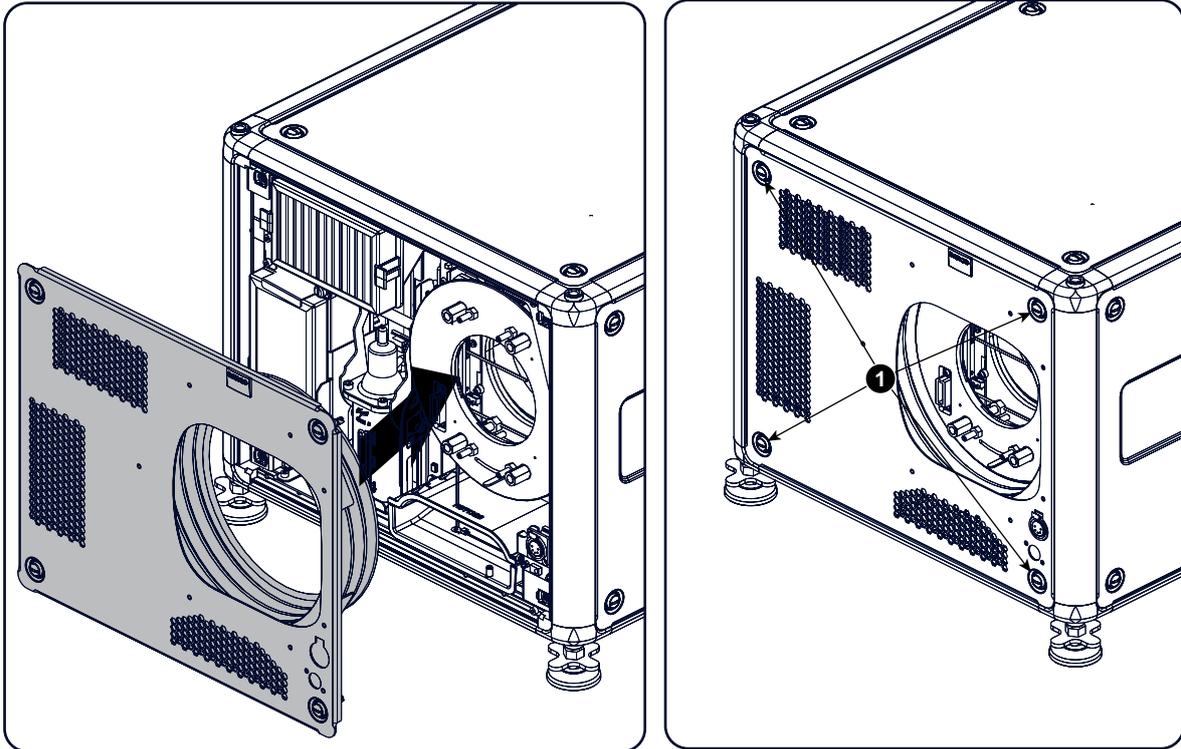


Image 16-8
Mount front cover

2. Secure the 4 captive screws (1).
3. Reinstall the rubber dust ring around the lens holder.

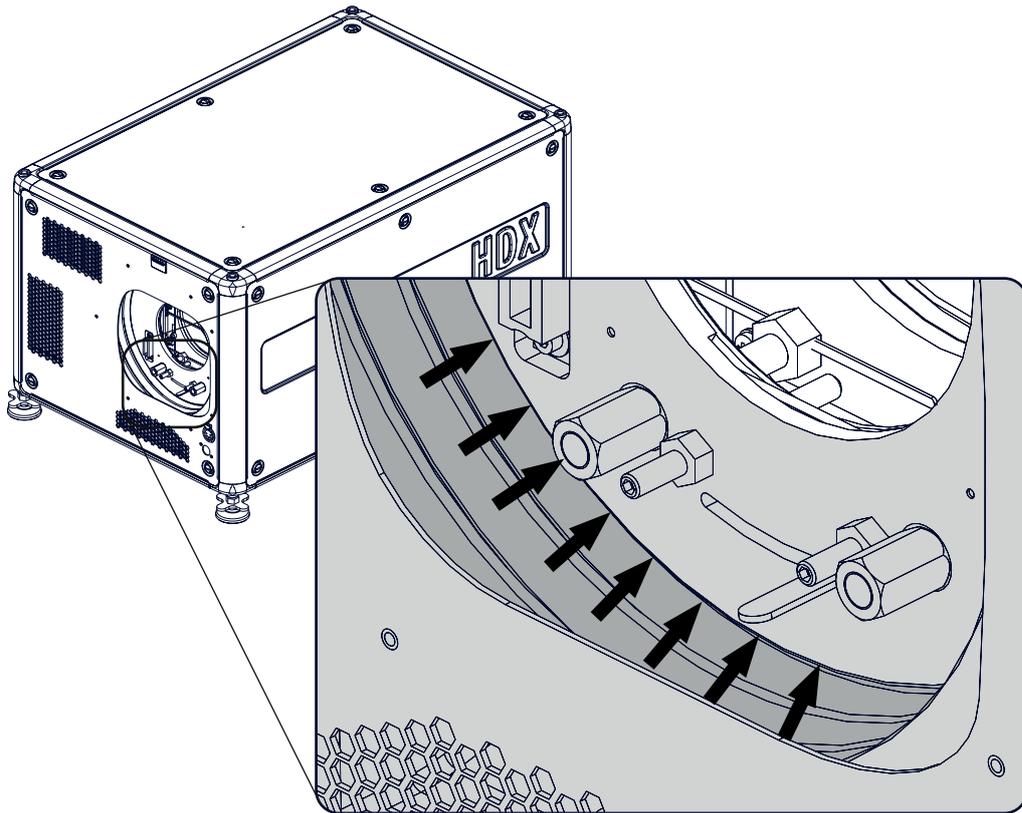


Image 16-9
Mount dust ring

4. Mount lens again.

16.6 Removal of the lamp cover



WARNING: Switch off the projector and unplug the power cord before starting the procedure.

Necessary tools

7 mm flat screw driver

How to remove

1. Release the 6 captive screws.

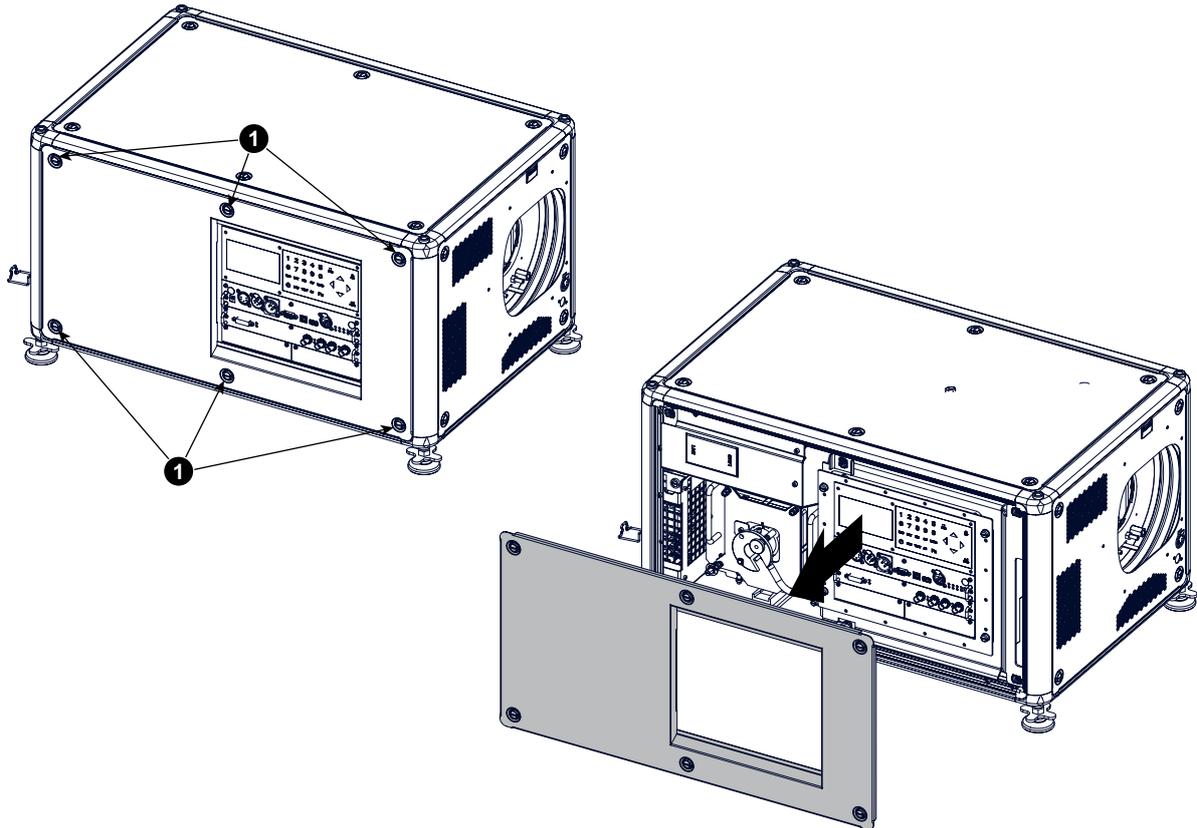


Image 16-10
Lamp side cover

2. Take off the side cover.

16.7 Mounting the lamp cover



WARNING: Switch off the projector and unplug the power cord before starting the procedure.

Necessary tools

7 mm flat screw driver

How to mount

1. Place the front cover on the is place and secure the 6 captive screws.

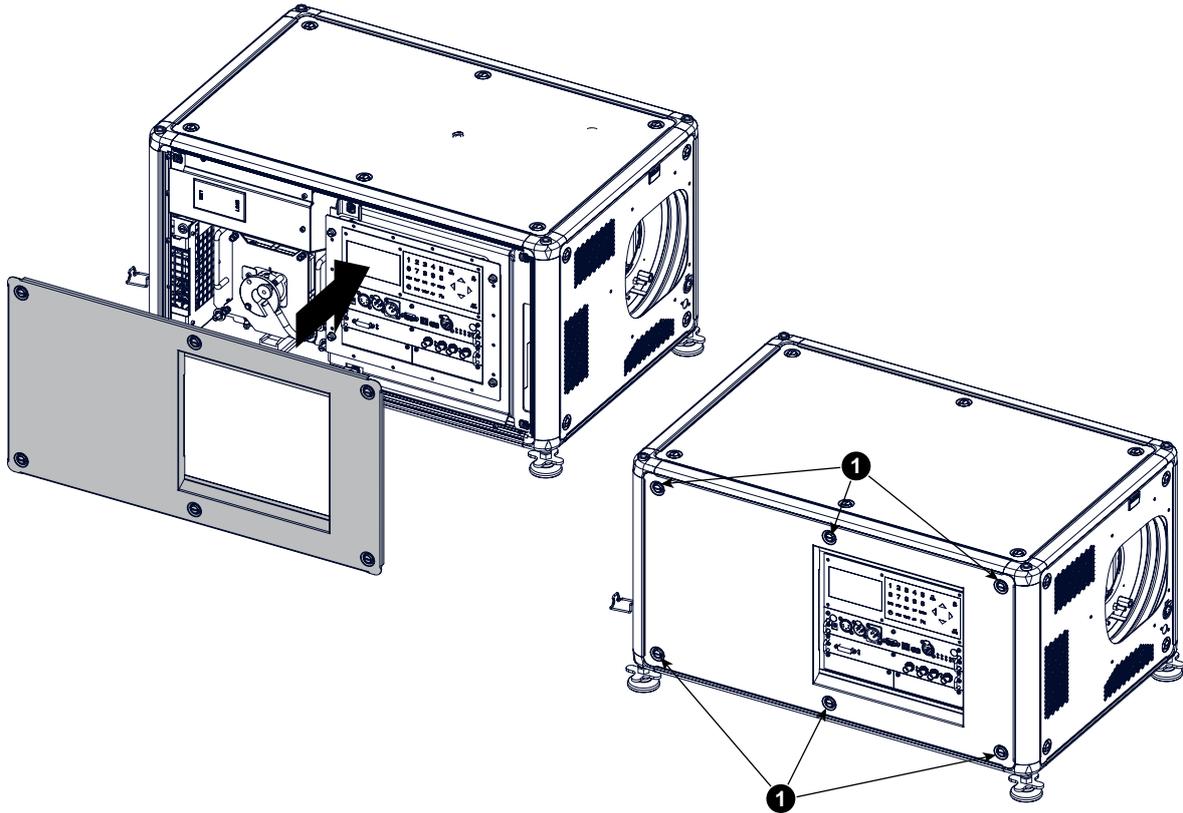


Image 16-11
Lamp side cover

16.8 Replacement of the high density dust filter



CAUTION: The high density filter must be replaced on a regular basis, depending on the environment conditions of the projector.



WARNING: Switch off the projector and unplug the power cord before starting the procedure.

Necessary parts

New filter (available kit : R98010085, contains 5 high density filters and one cleanable filter)

How to replace

1. Remove the front cover, see "Removal of the front cover", page 314.
2. Push both filter holders to the outside.

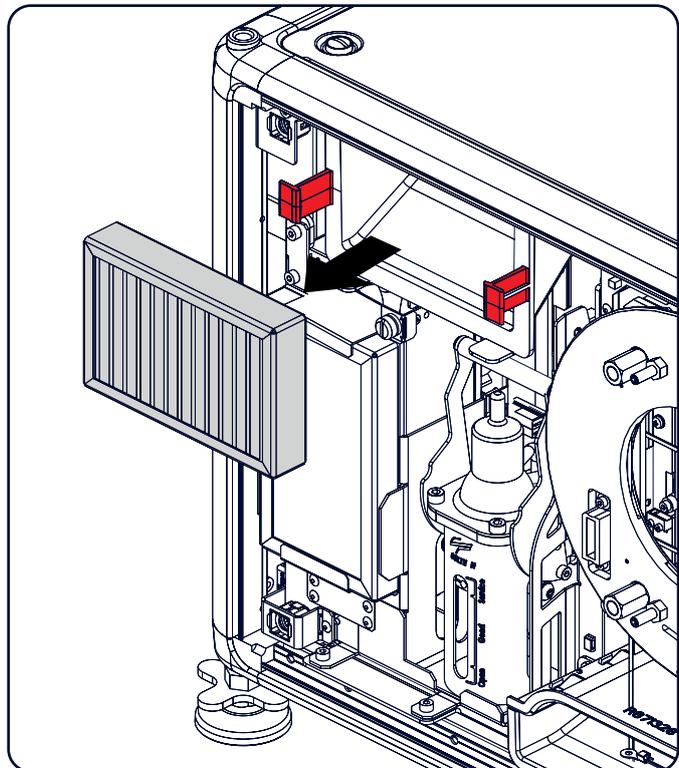
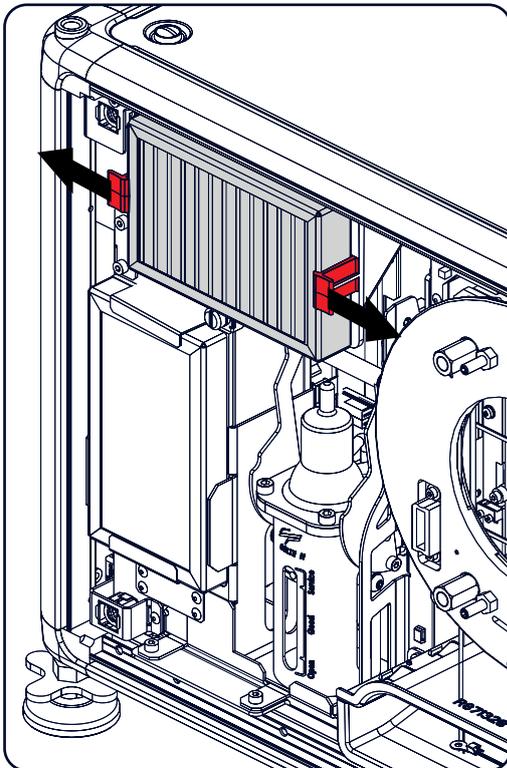


Image 16-12
Filter replacement

3. Take out the filter and insert a new one.



CAUTION: Never clean the filter Always replace with a new one.

16.9 Remove and clear metal front filter



WARNING: Switch off the projector and unplug the power cord before starting the procedure.

Necessary parts

New filter when needed (available kit : R98010085, contains 5 HEPA filters and one cleanable filter)

How to remove

1. Remove the front cover, see "Removal of the front cover", page 314.
2. Release the thumb screw (1)
3. Pull the bottom holder to the front.

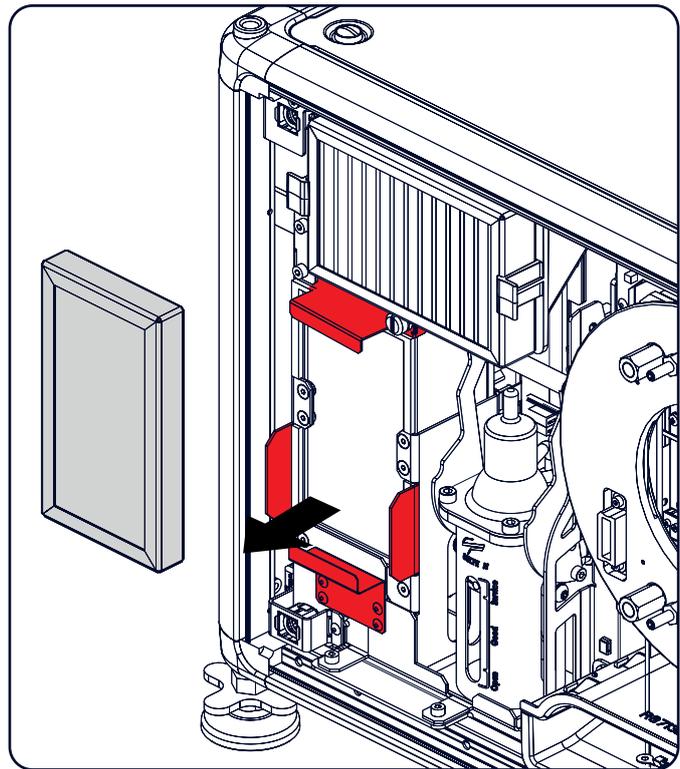
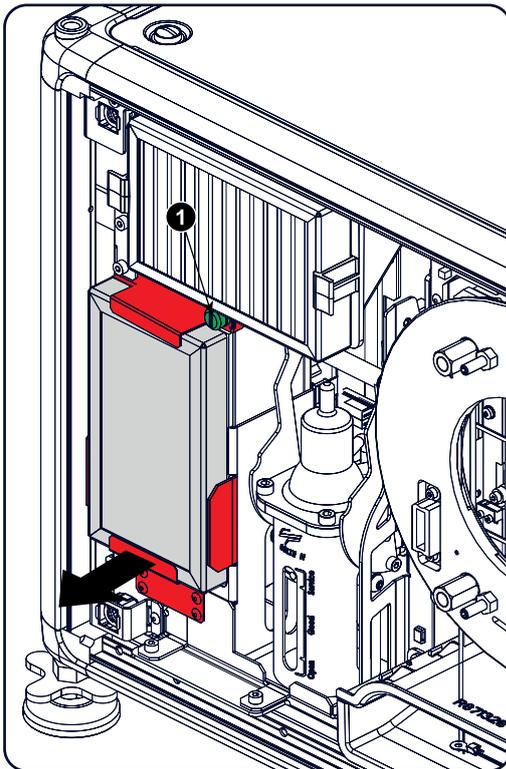


Image 16-13

4. At the same time, take out the filter.

Clean the dust filter

1. Remove most contamination with a vacuum cleaner.
2. Blow remaining dust away with compressed air in an other room or outside.



If you cannot clean the filter anymore, insert a new one.

How to install

1. Pull the bottom holder to the front and insert the filter.
2. Fasten the thumb screw (1).



CAUTION: Never use the projector with removed filters !

A. DIMENSIONS

Overview

- Dimensions of a HDX projector

A.1 Dimensions of a HDX projector

Overview

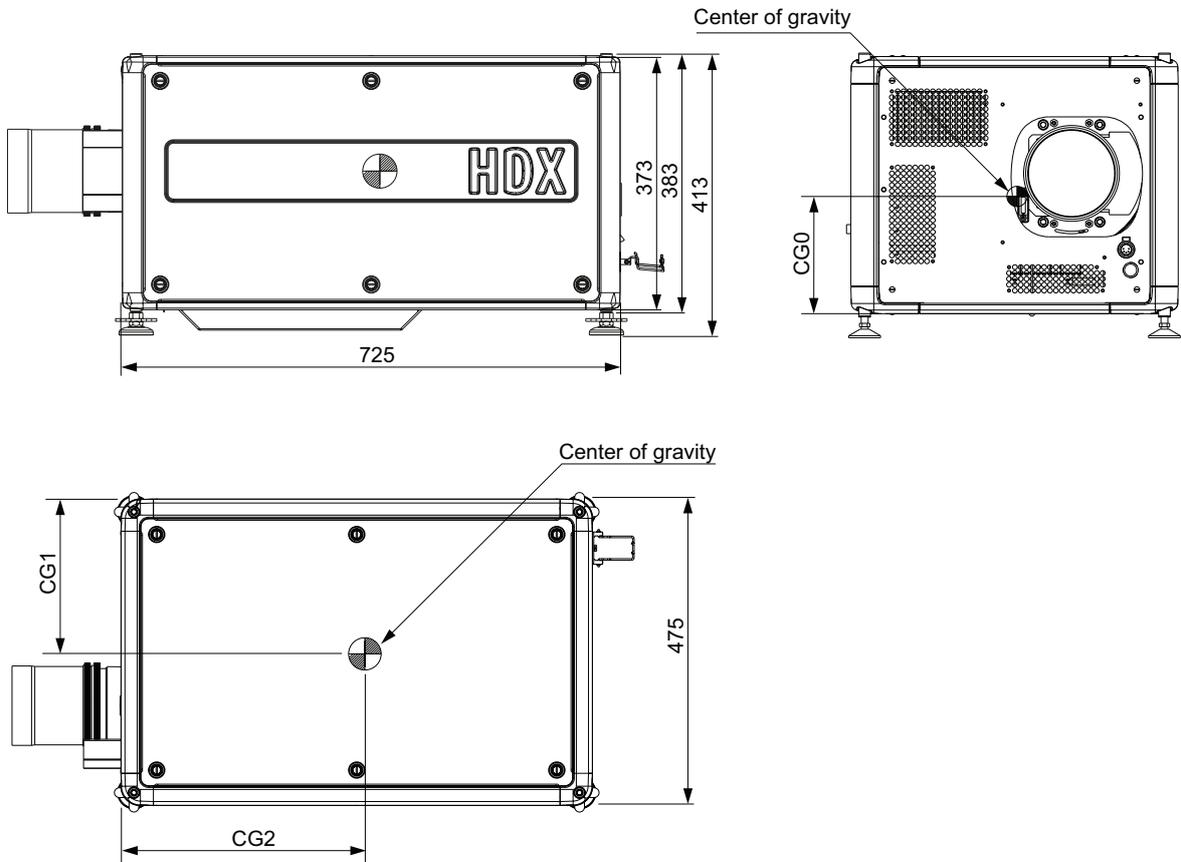


Image A-1
Dimensions, mm

| | Geometrical centre | Centre without lens | Centre with lens |
|-----|--------------------|---------------------|------------------|
| CG0 | 186.5 | 170.0 | 185.0 |
| CG1 | 237.5 | 241.0 | 248.0 |
| CG2 | 362.5 | 370.0 | 330.0 |

B. SPECIFICATIONS

B.1 Specifications of the HDX W14

Overview

| | |
|---|---|
| 3D ready (optional) | passive Infitec |
| AC power | 200-240 VAC/50-60 Hz |
| Accessories | Power cord; wireless/XLR wired rugged remote control |
| Aspect Ratio | 16:10 |
| Brightness uniformity | 90% (standard) |
| Certifications | Compliant with UL60950-1 and EN60950-1, complies with FCC rules & regulations, part 15 Class A and CE EN55022 Class A, RoHS |
| CLO (constant light output) | Standard |
| Color correction | P7 |
| Contrast | 1,700:1 (standard) 2,400:1 (high contrast mode) |
| Control | - XLR wired, IR, RS-232, DMX512 in/out, integrated web browser, Projection Toolset - optional control over WiFi and GSM/mobile |
| Customer bulb replace | Yes |
| Dimensions (WxLxH) | 475 x 725 x 382 mm (18.70" x 28.54" x 14.96") |
| Dissipation BTU | max. 8,871 BTU/h |
| DMX 512 | Standard |
| Input Resolutions | from NTSC up to QXGA (2,048x1,536) |
| Inputs | DVI - I (HDCP including analog RGB YUV), SDI/HDSDI/dual HDSDI/3G |
| integrated web server | Yes |
| Lamp | 2.5kW xenon |
| Lamp house, quick replace | Yes |
| Lamp lifetime (typical) | 1,750 hours |
| Lamp warranty (field replace/ factory replace) | 90 days, 500 hours / pro rata 750 hours |
| Lens range | TLD 0.73:1 ; 1.2:1 ; 1.25-1.6:1; 1.5-2.0:1 ; 2.0-2.8:1 ; 2.8-4.5:1 ; 4.5-7.5:1 ; 7.5-11.5:1 |
| Lens type | TLD+ |
| Light Output | 13,000 ANSI lumens 14,000 center lumens |
| Network connection | 10/100 Mb/s Ethernet (on RJ45), WiFi |
| Noise level (typical at 25°C/77°F)" | 50 dB(A) |
| Operating temperature | 0 ~ 40°C / 32 ~ 104°F |
| operation humidity no condens | 0 - 80% |
| Optical dower | Standard |
| Optical lens shift | Vertical: -10% to +110% Horizontal: -30% to +30% on zoom lenses (memorized) |
| Optional Inputs | 5-BNC RGBHV (RGBS/RGsB, YUV CS/SOY, Composite video, S-Video); DVI - I (HDCP including analog RGB YUV) + SDI/HDSDI/dual HDSDI/3G |
| Orientation | table - ceiling - side (portrait) - vertical |
| Picture-in-picture | Up to two sources on-screen simultaneously |
| Pixel clock | 200MHz |
| Power consumption | 2,600 W STBY <8 W |
| Projector type | WUXGA three-chip DLP digital projector |

B. Specifications

| | |
|----------------------------|---|
| Resolution | 1920x1200 (WUXGA) |
| ScenergiX | Horizontal and vertical edge blending |
| Sealed DLP™ core | Standard |
| Shipping Dimensions | (LxWxH) 900 x 650 x 560 mm (35,43" x 25,59" x 22,04") |
| Software tools | Projection Toolset |
| Technology | 0.96" DMD x3 |
| Transport with lamp | Yes |
| WARP | Preset values + custom |
| Warranty | 2 years |
| Weight | 50kg (110lbs) |

B.2 Specifications of the HDX W12

Overview

| | |
|---|---|
| 3D ready (optional) | active, passive Infitec |
| AC power | 200-240 VAC/50-60 Hz |
| Accessories | Power cord; wireless/XLR wired rugged remote control |
| Aspect Ratio | 16:10 |
| Brightness uniformity | 90% (standard) |
| Certifications | Compliant with UL60950-1 and EN60950-1, complies with FCC rules & regulations, part 15 Class A and CE EN55022 Class A, RoHS |
| CLO (constant light output) | Standard |
| Color correction | P7 |
| Contrast | 1,700:1 (standard) 2,400:1 (high contrast mode) |
| Control | - XLR wired, IR, RS-232, DMX512 in/out, integrated web browser, Projection Toolset - optional control over WiFi and GSM/mobile |
| Customer bulb replace | Yes |
| Dimensions (WxLxH) | 475 x 725 x 382 mm (18.70" x 28.54" x 14.96") |
| Dissipation BTU | max. 8,871 BTU/h |
| DMX 512 | Standard |
| Input Resolutions | from NTSC up to QXGA (2,048x1,536) |
| Inputs | DVI - I (HDCP including analog RGB YUV), SDI/HDSDI/dual HDSDI/3G |
| integrated web server | Yes |
| Lamp | 2.5kW xenon |
| Lamp house, quick replace | Yes |
| Lamp lifetime (typical) | 2,500 hours |
| Lamp warranty (field replace/ factory replace) | 90 days, 500 hours / pro rata 750 hours |
| Lens range | TLD 0.73:1 ; 1.2:1 ; 1.25-1.6:1 ; 1.5-2.0:1 ; 2.0-2.8:1 ; 2.8-4.5:1 ; 4.5-7.5:1 ; 7.5-11.5:1 |
| Lens type | TLD+ |
| Light Output | 12,000 center lumens 11,000 ANSI lumens |
| Network connection | 10/100 Mb/s Ethernet (on RJ45), WiFi |
| Noise level (typical at 25°C/77°F)" | 50 dB(A) |
| Operating temperature | 0 ~ 40°C / 32 ~ 104°F |
| operation humidity no condens | 0 - 80% |
| Optical dower | Standard |
| Optical lens shift | Vertical: -10% to +110% Horizontal: -30% to +30% on zoom lenses (memorized) |
| Optional Inputs | 5-BNC RGBHV (RGBS/RGSB, YUV CS/SOY, Composite video, S-Video); DVI - I (HDCP including analog RGB YUV) + SDI/HDSDI/dual HDSDI/3G |
| Orientation | table - ceiling - side (portrait) - vertical |
| Picture-in-picture | Up to two sources on-screen simultaneously |
| Pixel clock | 200MHz |
| Power consumption | 2,300 W STBY <8 W |
| Projector type | WUXGA three-chip DLP digital projector |

B. Specifications

| | |
|----------------------------|---|
| Resolution | 1920x1200 (WUXGA) |
| ScenergiX | Horizontal and vertical edge blending |
| Sealed DLP™ core | Standard |
| Shipping Dimensions | (LxWxH) 900 x 650 x 560 mm (35,43" x 25,59" x 22,04") |
| Software tools | Projection Toolset |
| Technology | 0.96" DMD x3 |
| Transport with lamp | Yes |
| Warranty | 2 years |
| Weight | 50kg (110lbs) |

C. STANDARD SOURCE FILES

C.1 Table overview

Table overview

The following standard image files are pre-programmed in the projector.

| Name ¹ | Fvert Hz ² | FHor kHz ³ | Fpix MHz ⁴ | Ptot ⁵ | Pact ⁶ | Ltot ⁷ | Lact ⁸ |
|-------------------|--------------------------|--------------------------|--------------------------|-------------------|-------------------|-------------------|-------------------|
| 640x350@85 | 85,079 | 37,860 | 31,500 | 832 | 640 | 445 | 350 |
| 640x400@85 | 85,079 | 37,860 | 31,500 | 832 | 640 | 445 | 400 |
| 640x480@60 | 59,940 | 31,668 | 25,175 | 800 | 640 | 525 | 480 |
| 640x480@72 | 72,888 | 30,288 | 19,687 | 832 | 640 | 520 | 480 |
| 640x480@75 | 74,999 | 37,500 | 31,500 | 840 | 640 | 500 | 480 |
| 640x480@85 | 85,009 | 43,270 | 36,000 | 832 | 640 | 509 | 480 |
| 720x400@85 | 85,040 | 37,928 | 35,500 | 936 | 720 | 446 | 400 |
| 800x600@50 | 50,000 | 31.250 | 32,000 | 1024 | 800 | 625 | 600 |
| 800x600@56 | 56,251 | 35,157 | 36,001 | 1024 | 800 | 625 | 600 |
| 800x600@60 | 60,317 | 37,879 | 40,000 | 1056 | 800 | 628 | 600 |
| 800x600@72 | 72,188 | 48,077 | 50,000 | 1040 | 800 | 666 | 600 |
| 800x600@75 | 75,001 | 46,876 | 49,501 | 1056 | 800 | 625 | 600 |
| 800x600@85 | 85,062 | 53,674 | 56,250 | 1048 | 800 | 631 | 600 |
| 848x480@60 | 60,000 | 31,020 | 33,750 | 1088 | 848 | 517 | 480 |
| 1024x768@43i | 86,957 | 35,522 | 44,900 | 1264 | 1024 | 817 | 768 |
| 1024x768@50 | 50,000 | 40,000 | 53,437 | 1336 | 1024 | 800 | 768 |
| 1024x768@60 | 60,004 | 48,363 | 65,000 | 1344 | 1024 | 806 | 768 |
| 1024x768@70 | 70.068 | 56,475 | 74,999 | 1328 | 1024 | 806 | 768 |
| 1024x768@75 | 75,030 | 60,024 | 78,751 | 1312 | 1024 | 800 | 768 |
| 1024x768@85 | 84,996 | 68,677 | 94,499 | 1376 | 1024 | 808 | 768 |
| 1152x864@75 | 74,999 | 67,499 | 107,999 | 1600 | 1152 | 900 | 864 |
| 1280x768@60 | 59,870 | 47,776 | 79,499 | 1664 | 1280 | 798 | 768 |
| 1280x768@75 | 74,992 | 60,288 | 102,249 | 1696 | 1280 | 805 | 768 |
| 1280x768@85 | 84,838 | 68,634 | 117,502 | 1712 | 1280 | 809 | 768 |
| 1280x768RB@60 | 59,994 | 47,396 | 68,250 | 1440 | 1280 | 790 | 768 |
| 1280x800@60 | 59,910 | 49,306 | 71,000 | 1480 | 1280 | 823 | 800 |
| 1280x960@50 | 50,000 | 50,000 | 90,000 | 1800 | 1280 | 1000 | 960 |
| 1280x960@60 | 59,999 | 59,999 | 107,998 | 1800 | 1280 | 1000 | 960 |
| 1280x960@85 | 85,005 | 85,940 | 128,505 | 1728 | 1280 | 1011 | 960 |
| 1280x1024@50 | 50,000 | 52,801 | 89,550 | 1696 | 1280 | 1056 | 1024 |
| 1280x1024@60 | 60,018 | 63,980 | 107,997 | 1688 | 1280 | 1066 | 1024 |
| 1280x1024@75 | 75,023 | 79,974 | 134,997 | 1688 | 1280 | 1066 | 1024 |
| 1280x1024@85 | 85,027 | 91,149 | 157,506 | 1728 | 1280 | 1072 | 1024 |
| 1360x768@60 | 59,898 | 47,619 | 85,333 | 1792 | 1360 | 795 | 768 |
| 1400x1050@50 | 50,000 | 54,500 | 94,618 | 1736 | 1400 | 1090 | 1050 |
| 1400x1050@60 | 59,979 | 65,317 | 121,751 | 1864 | 1400 | 1089 | 1050 |

1. Name: name of file, contains the settings.
2. Fvert Hz: vertical frame frequency of the source
3. FHor kHz: horizontal frequency of the source
4. Fpix MHz: pixel frequency
5. Ptot : total pixels on one horizontal line.
6. Pact: active pixels on one horizontal line.
7. Ltot: total lines in one field
8. Lact: active lines in one field.

C. Standard source files

| Name ¹ | Fvert Hz ² | FHor kHz ³ | Fpix MHz ⁴ | Ptot ⁵ | Pact ⁶ | Ltot ⁷ | Lact ⁸ |
|--------------------|--------------------------|--------------------------|--------------------------|-------------------|-------------------|-------------------|-------------------|
| 1400x1050@75 | 74,866 | 82,277 | 155,998 | 1896 | 1400 | 1099 | 1050 |
| 1400x1050@85 | 84,958 | 93,879 | 179,497 | 1912 | 1400 | 1105 | 1050 |
| 1400x1050RB@60 | 59,946 | 64,742 | 100,997 | 1560 | 1400 | 1080 | 1050 |
| 1440x900@60 | 59,887 | 55,935 | 106,500 | 1904 | 1440 | 934 | 900 |
| 1440x900@75 | 74,984 | 70,635 | 136,750 | 1936 | 1440 | 942 | 900 |
| 1440x900@85 | 84,842 | 80,430 | 157,000 | 1952 | 1440 | 948 | 900 |
| 1440x900RB@60 | 59,901 | 55,469 | 88,750 | 1600 | 1440 | 926 | 900 |
| 1600x900RB@60 | 60,000 | 60,000 | 108,000 | 1800 | 1600 | 1000 | 900 |
| 1600x1200@50 | 50,000 | 62,500 | 135,000 | 2160 | 1600 | 1250 | 1200 |
| 1600x1200@60 | 60,001 | 75,002 | 162,004 | 2160 | 1600 | 1250 | 1200 |
| 1600x1200@65 | 64,998 | 81,248 | 175,496 | 2160 | 1600 | 1250 | 1200 |
| 1600x1200@70 | 69,997 | 87,497 | 188,993 | 2160 | 1600 | 1250 | 1200 |
| 1600x1200@75 | 74,998 | 93,747 | 202,414 | 2160 | 1600 | 1250 | 1200 |
| 1600x1200@85 | 84,998 | 106,247 | 229,494 | 2160 | 1600 | 1250 | 1200 |
| 1680x1050@60 | 59,954 | 65,290 | 146,250 | 2240 | 1680 | 1089 | 1050 |
| 1680x1050@75 | 74,892 | 82,306 | 187,000 | 2272 | 1680 | 1099 | 1050 |
| 1680x1050@85 | 84,941 | 93,859 | 214,750 | 2288 | 1680 | 1105 | 1050 |
| 1680x1050RB@60 | 59,883 | 64,674 | 119,000 | 1840 | 1680 | 1080 | 1050 |
| 1792x1344@60 | 60,000 | 83,640 | 204,751 | 2448 | 1792 | 1394 | 1344 |
| 1792x1344@75 | 74,996 | 106,270 | 260,999 | 2456 | 1792 | 1417 | 1344 |
| 1856x1392@60 | 59,995 | 86,333 | 218,251 | 2528 | 1856 | 1439 | 1392 |
| 1920x1035@2997i | 59,94 | 33,716 | 74,176 | 2200 | 1920 | 562 | 517 |
| 1920x1035@30i | 60,00 | 33,750 | 74,250 | 2200 | 1920 | 561 | 517 |
| 1920x1080@2997i | 59,94 | 33,716 | 74,176 | 2200 | 1920 | 562 | 540 |
| 1920x1140@60 | 60,001 | 90,001 | 234,002 | 2600 | 1920 | 1500 | 1140 |
| 1920x1200@50 | 50,000 | 61,816 | 158,250 | 2560 | 1920 | 1238 | 1200 |
| 1920x1200@60 | 59,883 | 74,555 | 193,235 | 2592 | 1920 | 1245 | 1200 |
| 1920x1200RB@60 | 59,952 | 74,041 | 154,000 | 2080 | 1920 | 1235 | 1200 |
| 1920x1440@60 | 60,001 | 90,001 | 234,002 | 2600 | 1920 | 1500 | 1200 |
| 2048x1080RB@50 | 50,000 | 56,250 | 139,948 | 2488 | 2048 | 1125 | 1080 |
| 2048x1080RB@60 | 60,000 | 67,500 | 157,140 | 2328 | 2048 | 1125 | 1080 |
| 2048x1536RB@60 | 59,980 | 94,769 | 209,250 | 2208 | 2048 | 1580 | 1536 |
| hd-1280x720@24p | 24,000 | 18,000 | 74,250 | 4125 | 1280 | 750 | 720 |
| hd-1280x720@25p | 25,00018,750 | 18,750 | 74,250 | 3960 | 1280 | 750 | 720 |
| hd-1280x720@30p | 30,000 | 22,500 | 74,250 | 3300 | 1280 | 750 | 720 |
| hd-1280x720@50p | 60,000 | 37,500 | 74,250 | 1980 | 1280 | 750 | 720 |
| hd-1280x720@60p | 60,000 | 45,000 | 74,250 | 1650 | 1280 | 750 | 720 |
| hd-1920x1035@2997i | 59,94 | 33,176 | 74,176 | 2200 | 1920 | 562 | 517 |
| hd-1920x1035@30i | 60,000 | 33,750 | 74,250 | 2200 | 1920 | 562 | 517 |
| hd-1920x1080@24p | 24,000 | 27,000 | 74,250 | 2750 | 1920 | 1125 | 1080 |
| hd-1920x1080@24sf | 48,00038, | 27,000 | 74,250 | 2750 | 1920 | 562 | 540 |
| hd-1920x1080@25i | 50,000 | 28,125 | 74,250 | 2640 | 1920 | 562 | 540 |
| hd-1920x1080@25p | 25,000 | 28,125 | 74,250 | 2640 | 1920 | 1125 | 1080 |
| hd-1920x1080@30i | 60,000 | 33,750 | 74,250 | 2200 | 1920 | 562 | 540 |
| hd-1920x1080@30p | 30,000 | 33,750 | 74,250 | 2200 | 1920 | 1125 | 1080 |

| Name ¹ | Fvert Hz ² | FHor kHz ³ | Fpix MHz ⁴ | Ptot ⁵ | Pact ⁶ | Ltot ⁷ | Lact ⁸ |
|--------------------|--------------------------|--------------------------|--------------------------|-------------------|-------------------|-------------------|-------------------|
| hd-1920x1080@29,97 | 59,94 | 33,716 | 74,176 | 2200 | 1920 | 562 | 540 |
| hd-1920x1080@29,97 | 59,97 | 33,750 | 74,250 | 2200 | 1920 | 1125 | 1080 |
| hd-1920x1080_2@25 | 50,000 | 31,25 | 74,250 | 2376 | 1920 | 625 | 540 |
| hd-1920x1080@50p | 50,000 | 56,250 | 148,500 | 2640 | 1920 | 1125 | 1080 |
| hd-1920x1080@60p | 60,000 | 67,500 | 148,500 | 2200 | 1920 | 1125 | 1080 |
| VIDEO525 | 59,940 | 15,734 | 13,500 | 858 | 720 | 262 | 242 |
| VIDEO525p | 59,940 | 31,469 | 27,000 | 858 | 720 | 525 | 484 |
| VIDEO625 | 50,000 | 15,625 | 13,500 | 864 | 720 | 312 | 288 |
| VIDEO625p | 50,000 | 31,250 | 27,000 | 864 | 720 | 625 | 576 |

Table C-1

D. DMX CHART

Overview

- DMX chart, Basic
- DMX chart, Full
- DMX chart, Extended

D.1 DMX chart, Basic

Overview

| Channel | Function | Value | Default | Action |
|---------|-----------------|-----------|-------------|--|
| 1 | Intensity | 0 - 5 | 255 | Mechanical shutter closed |
| | | 6 - 255 | | Electronic contrast on output |
| 2 | Function select | 0 - 7 | 0 | No function |
| | | 8 - 15 | | Activate layout 1 (Main full screen) (If held for 2 seconds) |
| | | 16 - 23 | | Activate layout 2 (PiP top right) (If held for 2 seconds) |
| | | 24 - 31 | | Activate layout 3 (Split top bottom) (If held for 2 seconds) |
| | | 32 - 39 | | Activate layout 4 (Split left right) (If held for 2 seconds) |
| | | 40 - 47 | | Activate layout 5 (If held for 2 seconds) |
| | | 48 - 55 | | Activate layout 6 (If held for 2 seconds) |
| | | 56 - 63 | | Activate layout 7 (If held for 2 seconds) |
| | | 64 - 71 | | Activate layout 8 (If held for 2 seconds) |
| | | 72 - 79 | | Activate layout 9 (If held for 2 seconds) |
| | | 80 - 87 | | Activate layout 10 (If held for 2 seconds) |
| | | 88 - 95 | | Input 1 (If held for 2 seconds) |
| | | 96 - 103 | | Input 2 (If held for 2 seconds) |
| | | 104 - 111 | | Input 3 (If held for 2 seconds) |
| | | 112 - 119 | | Input 4 (If held for 2 seconds) |
| | | 120 - 207 | | No function |
| | | 208 - 215 | | Power On / Lamp On (If held for 5 seconds) |
| | | 216 - 223 | | Stand by / lamp Off (If held for 5 seconds) |
| | | 224 - 231 | | XLR output voltage On (if held for 5 seconds) |
| | | 232 - 239 | | XLR output voltage Off (if held for 5 seconds) |
| | | 240 - 255 | No function | |

D.2 DMX chart, Full

Overview

| Chan- nel | Function | Value | Default | Action |
|--------------|-----------------|-----------|---------|---|
| 1 | Intensity | 0 - 5 | 255 | Mechanical shutter closed |
| | | 6 - 255 | | Electronic contrast on output |
| 2 | Brightness | 0 - 255 | 128 | Adjusts the brightness between 0 and 100% on input |
| 3 | Contrast | 0 - 255 | 128 | Adjust the contrast between 0 and 100% on input |
| 4 | Input selection | 0 - 87 | 0 | No function |
| | | 88 - 95 | | Input 1 (if held for 2 seconds) |
| | | 96 - 103 | | Input 2 (if held for 2 seconds) |
| | | 104 - 111 | | Input 3 (if held for 2 seconds) |
| | | 112 - 119 | | Input 4 (if held for 2 seconds) |
| | | 120 - 255 | | No function |
| 5 | Function select | 0 - 31 | 0 | No function |
| | | 32 - 63 | | Focus motor |
| | | 64 - 95 | | Zoom motor |
| | | 96 - 127 | | Lens shift Right Left |
| | | 128 - 159 | | Lens shift Up Down |
| | | 160 - 191 | | Power On / Lamp On (together with channel 6 and 7 held in 255 for 5 sec) |
| | | 192 - 223 | | Stand By / Lamp Off (together with channel 6 and 7 held in 255 for 5 sec) |
| | | 224 - 255 | | Return lens to center position (if held for 5 seconds) |
| 6 | Motor Go >> | 0 - 31 | 0 | Stop |
| | | 32 - 63 | | Run |
| | | 64 - 223 | | No function |
| | | 224 - 255 | | Move lens to maximum position |
| 7 | Motor Go << | 0 - 31 | 0 | Stop |
| | | 32 - 63 | | Run |
| | | 64 - 223 | | No function |
| | | 224 - 255 | | Move lens to minimum position |
| 8 | Free | 0 - 255 | | |
| 9 | Lamp Power | 0 - 24 | 0 | Powered at 100% |
| | | 25 - 49 | | Powered at 95% |
| | | 50 - 74 | | Powered at 90% |
| | | 75 - 99 | | Powered at 85% |
| | | 100 - 124 | | Powered at 80% |
| | | 125 - 149 | | Powered at 75% |
| | | 150 - 174 | | Powered at 70% |
| | | 175 - 199 | | Powered at 65% |
| | | 200 - 224 | | Powered at 60% |
| | | 225 - 255 | | Powered at 55% |
| 10 | Free | 0 - 255 | | |

D.3 DMX chart, Extended

Overview

| Channel | Function | Value | Default | Actions |
|-----------|--|-----------|---------|---|
| 1 | Intensity | 0 - 5 | 255 | Mechanical shutter closed |
| | | 6 - 255 | | Electronic contrast on output |
| 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 - 87 | 0 | No function |
| | | 88 - 95 | | Input 1 (if held for 2 seconds) |
| | | 96 - 103 | | Input 2 (if held for 2 seconds) |
| | | 104 - 111 | | Input 3 (if held for 2 seconds) |
| | | 112 - 119 | | Input 4 (if held for 2 seconds) |
| | | 120 - 255 | | No function |
| 5 | Lens control | 0 - 7 | 0 | No function |
| | | 8 - 15 | | Lens shift Right |
| | | 16 - 23 | | No function |
| | | 24 - 31 | | Lens shift Left |
| | | 32 - 39 | | No function |
| | | 40 - 47 | | Lens shift up |
| | | 48 - 55 | | No function |
| | | 56 - 63 | | Lens shift down |
| | | 64 - 231 | | No function |
| | | 232 - 239 | | Return lens to center (if held for 5 seconds) |
| | | 240 - 247 | | Calibrate lens zoom + focus (if held for 5 seconds) |
| | | 248 - 255 | | No function |
| 6 | Focus (MSB) | 0 - 255 | 128 | Coarse lens focus adjustment ⁹ |
| 7 | Focus (LSB) | 0 - 255 | 128 | Fine lens focus adjustment ⁹ |
| 8 | Zoom (MSB) | 0 - 255 | 128 | Coarse lens zoom adjustment ⁹ |
| 9 | Zoom (LSB) | 0 - 255 | 128 | Fine lens zoom adjustment ⁹ |
| 10 | Lamp Control | 0 - 7 | 0 | Lamp power 100% |
| | | 8 - 15 | | Lamp power 95% |
| | | 16 - 23 | | Lamp power 90% |
| | | 24 - 31 | | Lamp power 85% |
| | | 32 - 39 | | Lamp power 80% |
| | | 40 - 47 | | Lamp power 75% |
| | | 48 - 55 | | Lamp power 70% |
| | | 56 - 63 | | Lamp power 65% |
| | | 64 - 71 | | Lamp power 60% |
| | | 72 - 79 | | Lamp power 55% |
| | | 80 - 207 | | No function |
| | | 208 - 215 | | Power On / Lamp On (If held for 5 seconds) |
| | | 216 - 223 | | Stand by / Lamp Off (if held for 5 seconds) |
| | | 224 - 231 | | XLR output voltage On (if held for 5 seconds) |
| 232 - 239 | XLR output voltage Off (if held for 5 seconds) | | | |
| 240 - 255 | No function | | | |

9. Only when lens is calibrated

E. STACKING HDX PROJECTORS

Overview

- Mount stacking points
- Stacking HDX projectors
- Aligning stacked HDX projectors

E.1 Mount stacking points

Necessary tools

Allen key 8 mm

How to mount

1. Place the first stacking point on a corner.

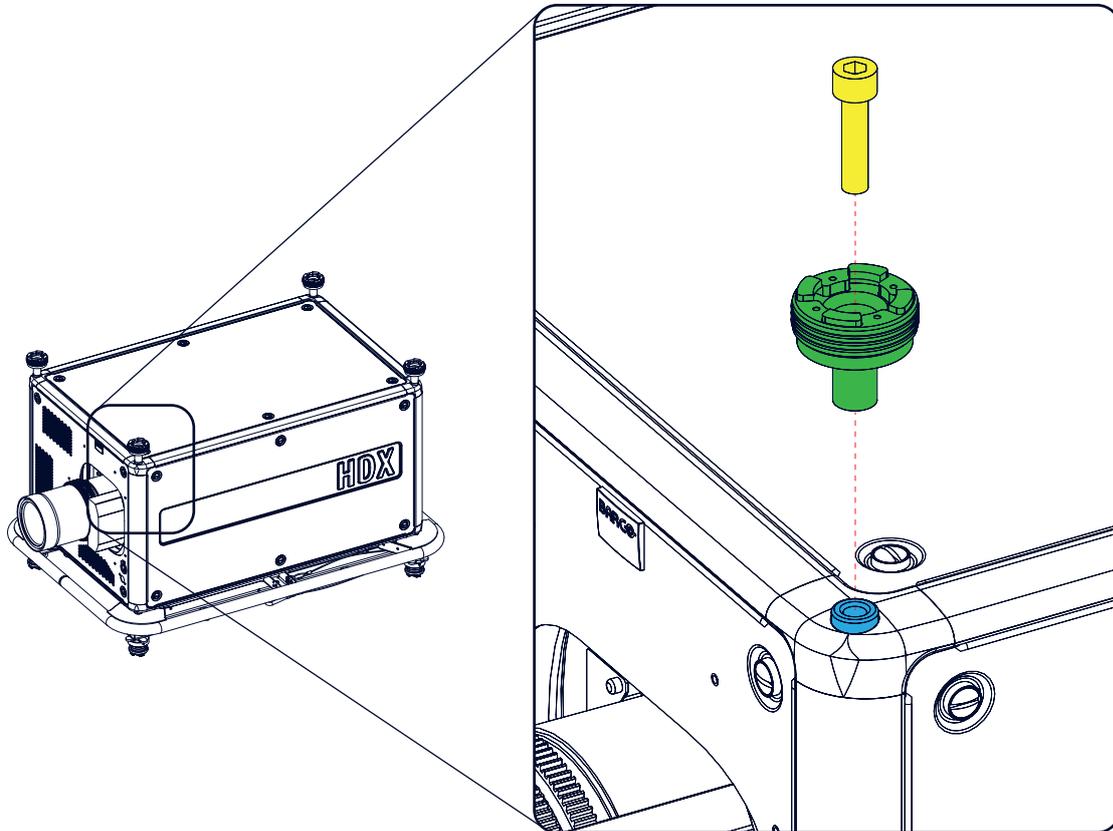


Image E-1
Stacking points, mount

2. Turn in the delivered bolt.
3. Repeat for the other 3 stacking points.

E.2 Stacking HDX projectors



CAUTION: Maximum stack three (3) projectors in a table mounted configuration.
Maximum stack two (2) projectors in a ceiling mounted configuration.

How to stack

1. Mount stacking points on lower projector. See "Mount stacking points", page 342.
2. Mount a bottom carry handle on the upper projector. See "Mounting the bottom carry handler", page 46.
3. Place the projector with carry handle on top of the projector with stacking points.
Make sure that all interlocking pins match with their corresponding interlocking sockets.

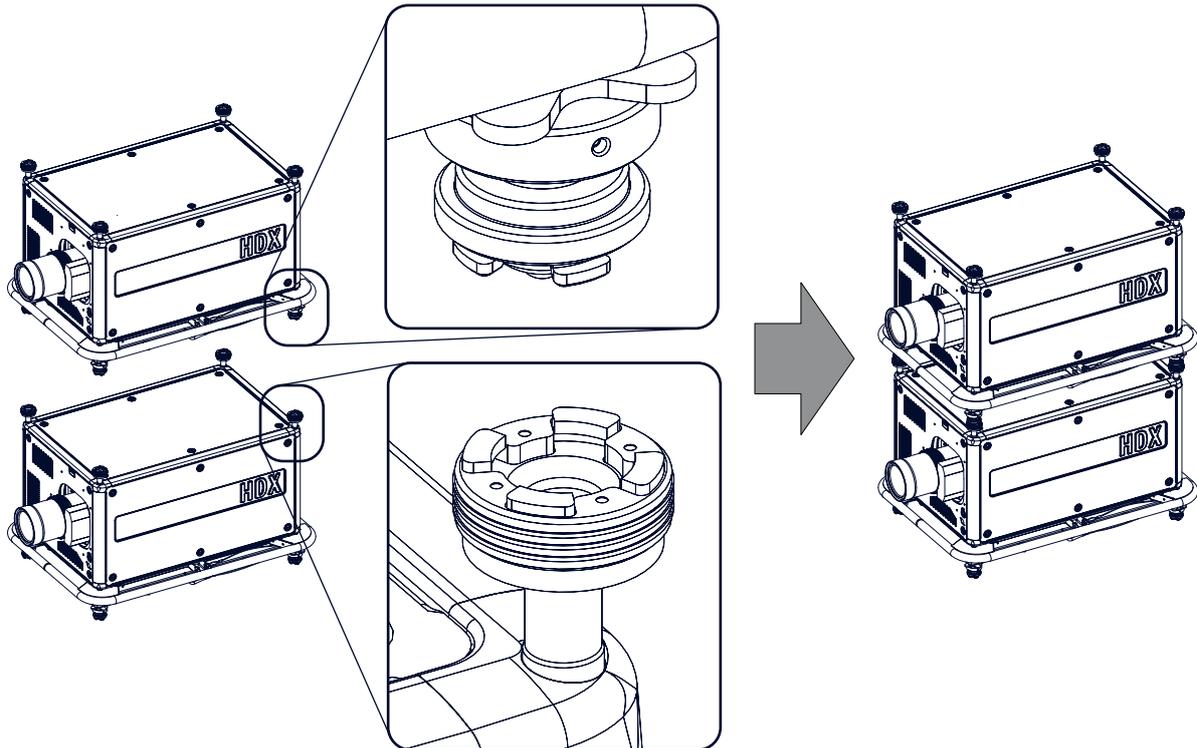


Image E-2
Dual stack

Tip: In case of stacking projectors for a ceiling mount configuration, first turn the projectors upside down before placing the projectors on top of each other.

4. Attach the two projectors together by closing all four interlocking adapters.

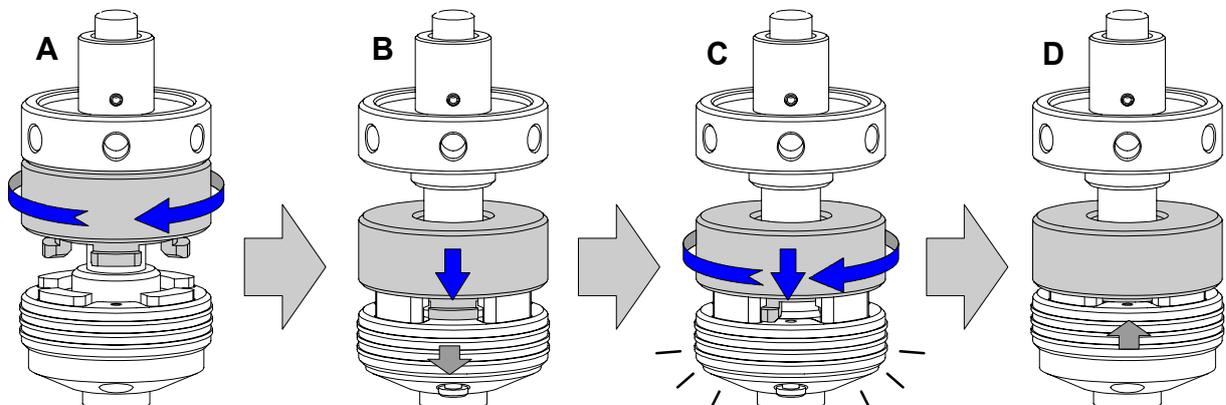


Image E-3
Interlocking, close

Extra actions for ceiling mounted stack

Two safety cables must be mounted between both projectors.

1. Mount the safety cable around the carrying handle of the bottom projector. Push the safety hook through the loop.

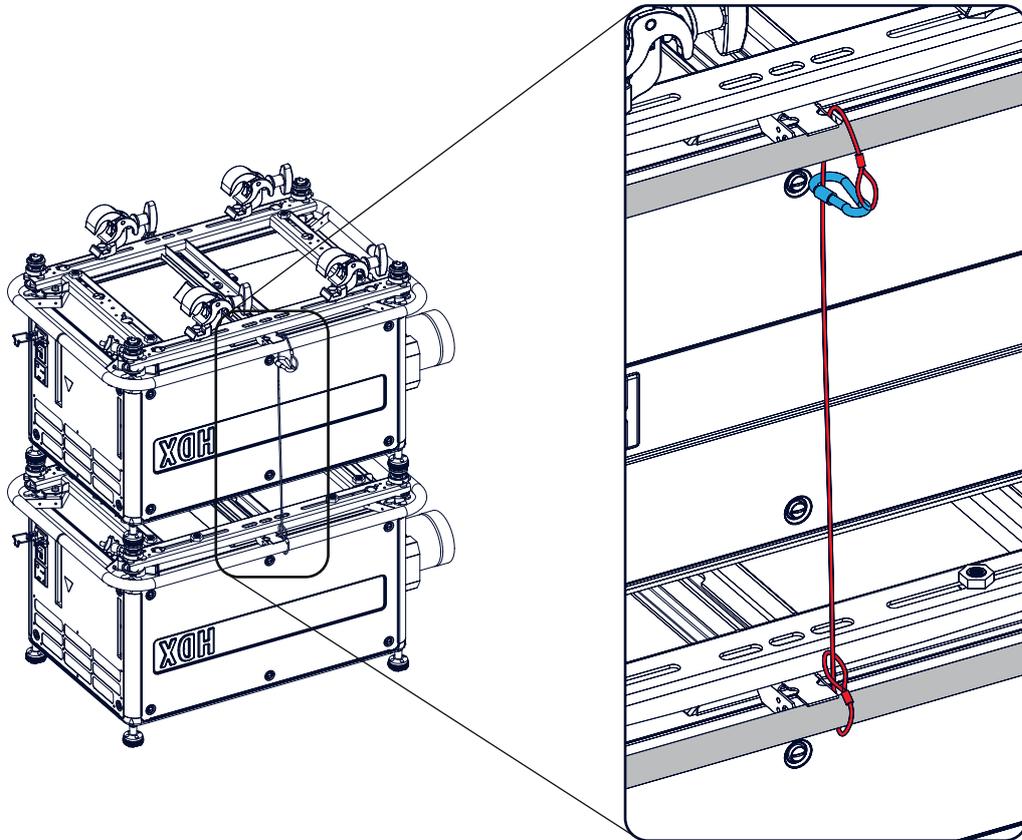


Image E-4
Security cables, mount

2. Mount the other end of the security cable around the carry handle of the top projector and clasp the safety hook round the cable as illustrated.
Make sure that the falling distance is maximum 20 cm. If necessary, before clasping the safety hook around the cable, turn the cable a few time around the carry handle.
3. Repeat this procedure for the second safety cable on the other side of the carry handle.



WARNING: Always use both safety cables of the lowest projector to secure a stacked projector in a ceiling mount configuration.

How to open an interlocking adapter

1. Open an interlocking adaptor as illustrated.

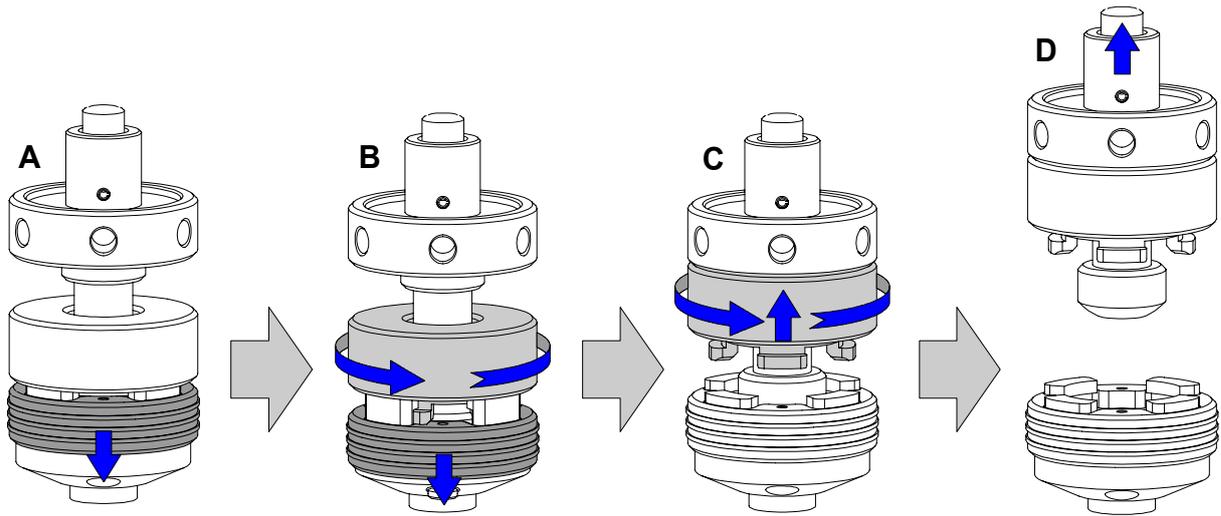


Image E-5
Interlocking, open



WARNING: Never open an interlocking adapter of a stacked projector which is still suspended. First place the stacked projectors on the floor.

E.3 Aligning stacked HDX projectors

Necessary tools

No tools.

How to align stacked projectors

1. Make sure that the internal hatch pattern projected by the reference projector is sharp and has a perfect rectangle outline. If this is not the case, readjust the reference projector before aligning the other stacked projector(s) with the reference hatch pattern.
Note: The reference projector in a stacked configuration is the lowest projector in case of table mount and the uppermost projector in case of ceiling mount.
2. Project with the stacked projector the same internal hatch pattern as the reference projector.
Tip: Use a white colored hatch pattern for the reference projector and e.g. green colored for the stacked projector. This makes it easier to see the difference between both hatch patterns projected.
3. If necessary, adjust the rotation of the stacked projector with respect to the reference projector by turning in or out the height adjustment ring of the interlocking adaptors at the rear of the stacked projector. Adjust until the outline of the hatch pattern is most symmetric with the reference hatch pattern.

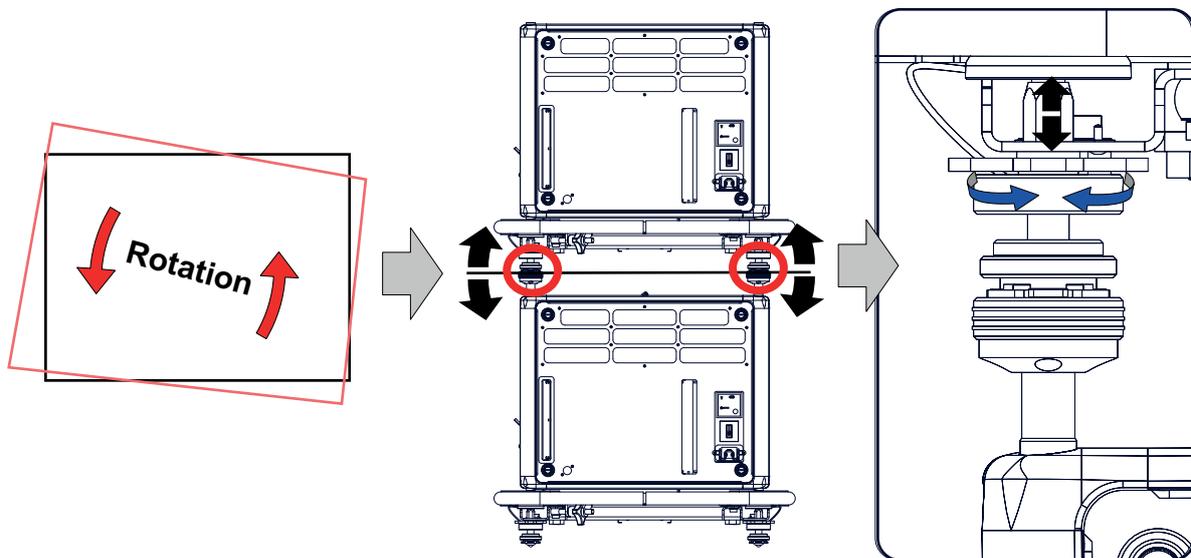


Image E-6
Stacked projectors, rotation

4. If necessary, adjust the inclination of the stacked projector with respect to the reference projector by turning the height adjustment ring of the interlocking adaptor at the front of the stacked projector in or out. Adjust until the outline of the hatch pattern is most symmetric with the reference hatch pattern.

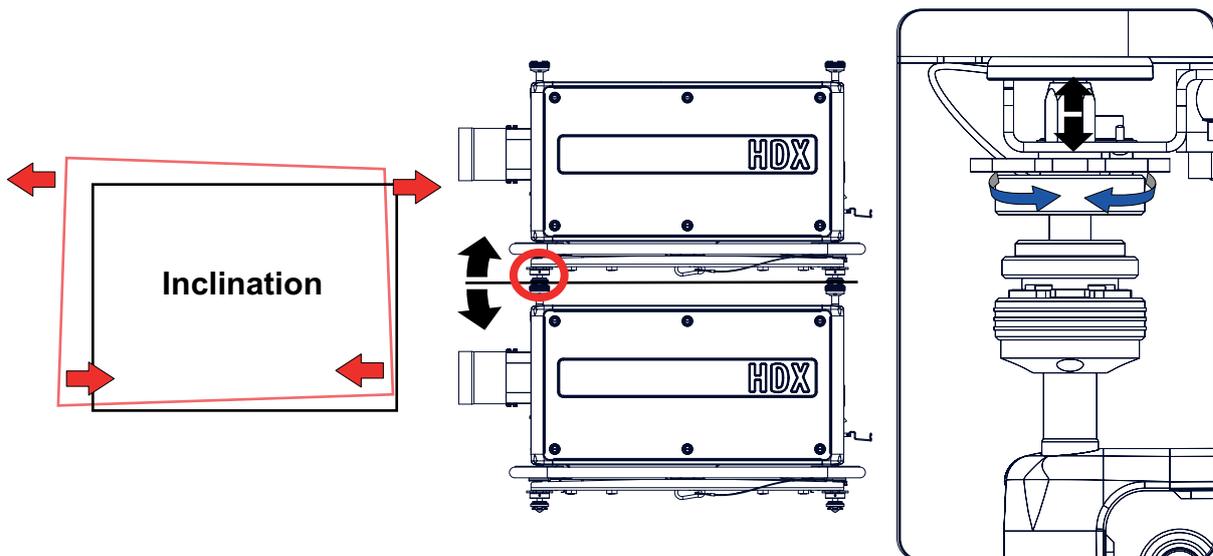


Image E-7
Stacked projectors, inclination

- If necessary, adjust the skew of the stacked projector with respect to the reference projector by turning the Hand screw in or out. The hand screw is located at smallest side of the carrying handle (front or back). Adjust until the outline of the hatch pattern is most symmetric with the reference hatch pattern.

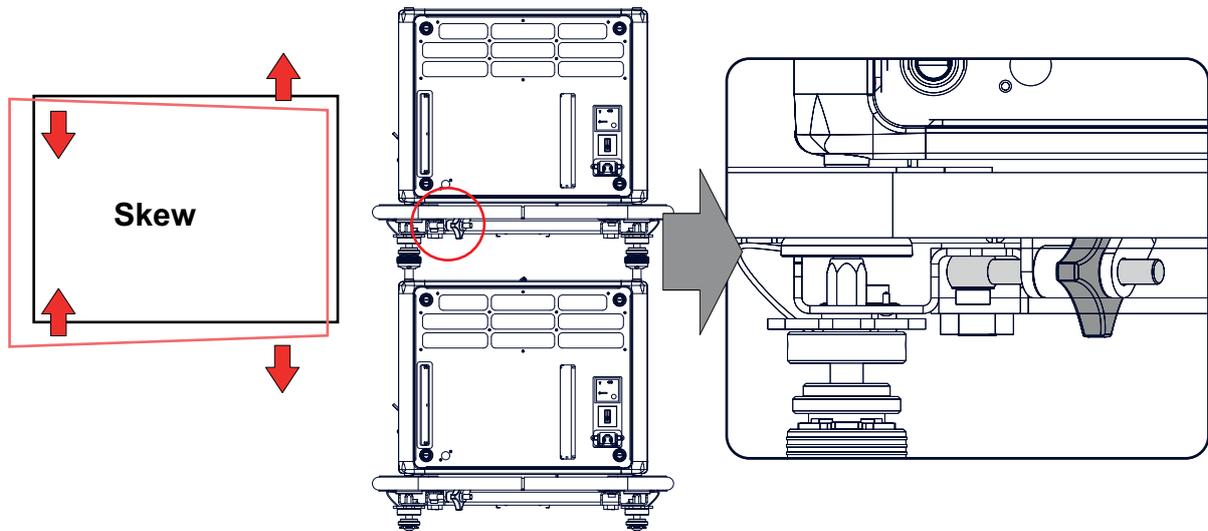


Image E-8
Stacked projectors, skew

- Shift the hatch pattern horizontally and vertically until the outline of the hatch pattern is most symmetrically placed with respect to the reference hatch pattern.

Note: Note that the "Shift" function is motorized, which means that you have to access the projector software, via the local keypad or remote control unit, to operate the "Shift" function.

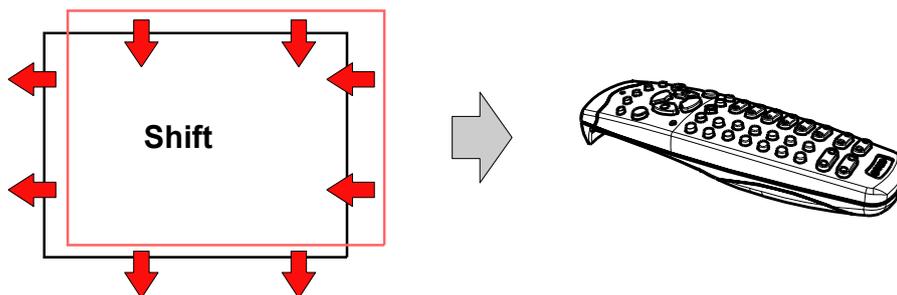


Image E-9
Stacked projectors, shift

- Zoom the hatch pattern in or out until the outline of the hatch pattern matches exactly the outline of the reference hatch pattern.

Note: Note that the "Zoom" function is motorized, which means that you have to access the projector software, via the local keypad or remote control unit, to operate the "Zoom" function.

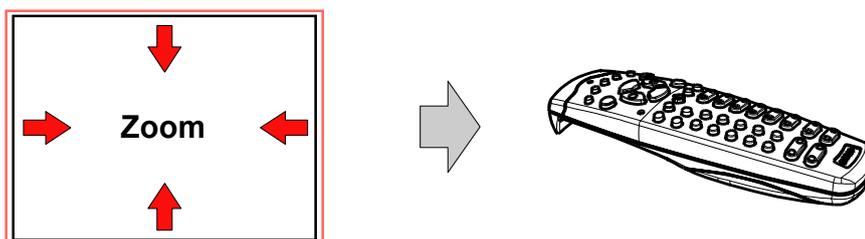


Image E-10
Stacked projector, zoom

- If necessary, repeat from step 2 until the hatch pattern of the stacked projector is perfectly aligned with the hatch pattern of the reference projector.



In case of a triple stacked table mount projector configuration adjust and align first the bottommost projector (reference), then the projector in the middle and finally the uppermost projector.

F. ENVIRONMENTAL INFORMATION

F.1 Disposal information

Disposal Information

Waste Electrical and Electronic Equipment



■ This symbol on the product indicates that, under the European Directive 2002/96/EC 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: <http://www.barco.com/en/AboutBarco/weee>

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.

F.2 Rohs compliance

Turkey RoHS compliance



■ Türkiye Cumhuriyeti: EEE Yönetmeliğine Uygundur.

[Republic of Turkey: In conformity with the EEE Regulation]

中国大陆 RoHS (Information for China ROHS compliance)

根据中国大陆《电子信息产品污染控制管理办法》(也称为中国大陆 RoHS), 以下部份列出了本产品中可能包含的有毒有害物质或元素的名称和含量。



Table of toxic and hazardous substances/elements and their content, as required by China's management methods for controlling pollution by electronic information products

| 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 | 0 | 0 | 0 | 0 | 0 | 0 |
| 插入式插件 Plug assembly | 0 | 0 | 0 | 0 | 0 | 0 |
| 外接电(线)缆 External Cables | 0 | 0 | 0 | 0 | 0 | 0 |
| 内部线路 Internal wiring | 0 | 0 | 0 | 0 | 0 | 0 |
| 散热片(器) Heatsinks | 0 | 0 | 0 | 0 | 0 | 0 |
| 光学镜头 Optical lenses | x | 0 | 0 | 0 | 0 | 0 |
| 底架 Chassis | 0 | 0 | 0 | 0 | 0 | 0 |
| 外壳 Enclosure | 0 | 0 | 0 | 0 | 0 | 0 |
| 螺帽,螺钉(栓),螺旋(钉),垫圈,紧固件 Nuts, bolts, screws, washers, Fasteners | 0 | 0 | 0 | 0 | 0 | 0 |
| 电源供应器 Power Supply Unit | 0 | 0 | 0 | 0 | 0 | 0 |
| 风扇 Fan | 0 | 0 | 0 | 0 | 0 | 0 |
| 键盘 Keyboard | 0 | 0 | 0 | 0 | 0 | 0 |

| 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 |
| 显示(器) Display | 0 | 0 | 0 | 0 | 0 | 0 |
| 正面(前)面板 Front panel | 0 | 0 | 0 | 0 | 0 | 0 |
| 金属制品[制造] Metalwork | 0 | 0 | 0 | 0 | 0 | 0 |
| 塑胶制品[制造] Plastic work | 0 | 0 | 0 | 0 | 0 | 0 |
| 电池(组) Batteries | 0 | 0 | 0 | 0 | 0 | 0 |
| 文件说明书 Paper Manuals | 0 | 0 | 0 | 0 | 0 | 0 |
| 光盘说明书 CD Manual | 0 | 0 | 0 | 0 | 0 | 0 |
| 装置配件 Installation kit | 0 | 0 | 0 | 0 | 0 | 0 |
| 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 SJ/T 11363-2006 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 SJ/T11363-2006. | | | | | | |
| 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 SJ/T 11363-2006 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 SJ/T11363-2006 | | | | | | |

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Revision Sheet

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