XLM HD30

Owner's manual

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BARCO

Visibly yours

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TABLE OF CONTENTS

1. PACKAGING AND DIMENSIONS

1.1 Projector Packaging

Way of Packaging

The projector is packed in a carton box. To provide protection during transportation, the projector is surrounded with foam. The package is secured with banding and fastening clips.

To unpack

1. Release the fastening clips.
2. Remove the banding. Handle as shown in the drawing. (image 1-1)
3. Take the projector out of its shipping carton and place it on a table.

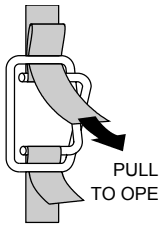


Image 1-1

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.

CAUTION: Never transport the projector with the lens mounted on it !

Always remove the lens before transporting the projector.

1.2 Lens Packaging

Way of Packaging

Lenses are supplied as an individual item.

They are packed in a carton.

1.3 Lamp House Packaging

Way of Packaging

The lamp house is supplied as an individual item.

They are packed in a carton.

Never transport the projector with the lamp mounted inside the projector.

1.4 Box content

Content

- 1 XLM HD30 projector (weight 180 kg) without lamp house and lens.
- 1 remote control unit (RCU) + 2 batteries
- 1 rugged remote control
- 1 owners manual
- 1 safety manual
- 1 female plug P3 + NE 400V (red)
- 1 female plug P3 + E 250V (blue)

1.5 Dimensions

Dimensions are given without lens.

Side view

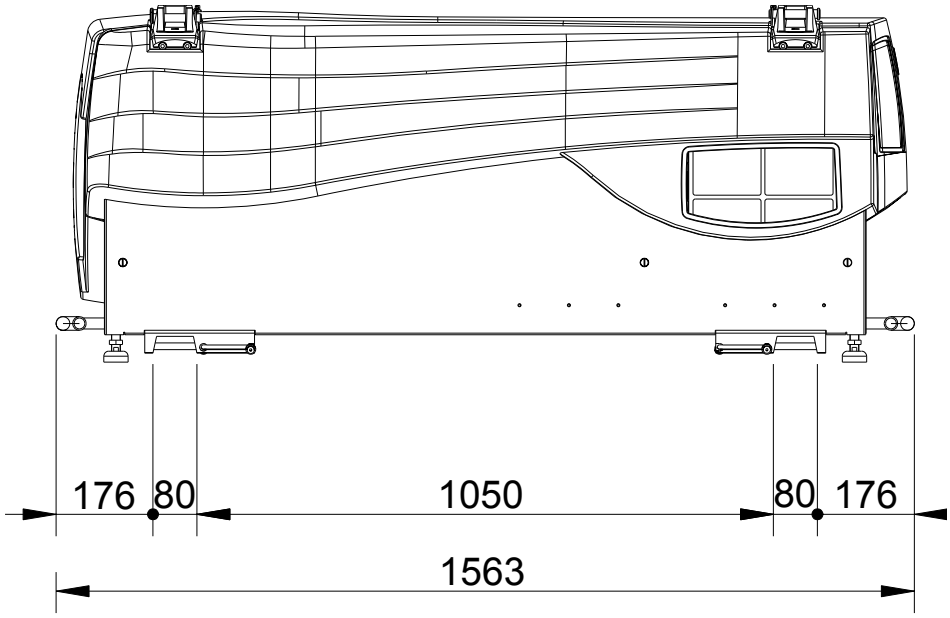


Image 1-2
Side view

Front view

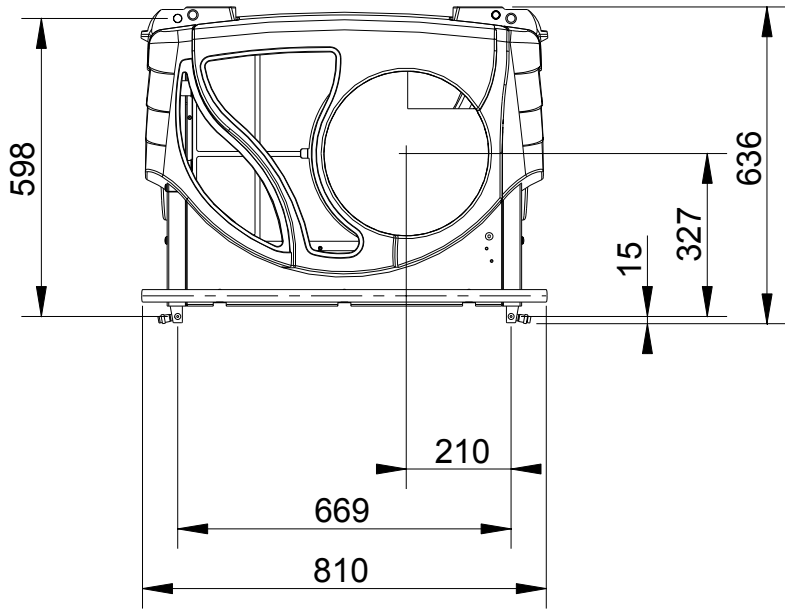


Image 1-3
Front view

Top view

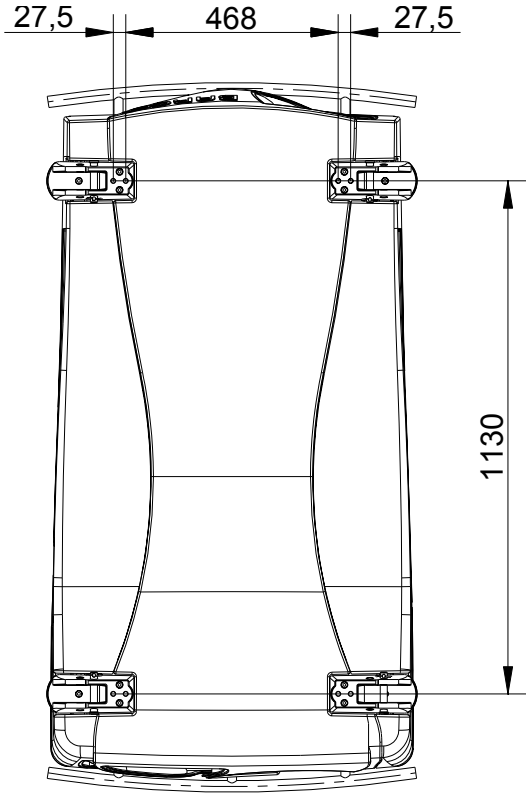


Image 1-4
Top view

1.6 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 take. 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: www.partnerzone.events.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: R5976925) and follow the installation instructions as written in this manual.

2. INSTALLATION GUIDELINES

Overview

- General guidelines
- Restricted Access Location
- Projector configuration
- Safety Area around projector
- Lenses
- Mounting the lamp house
- Transporting the projector
- Battery Insertion in the Remote Control
- Battery insertion in the Rugged remote control
- Charging the batteries of the rugged remote control
- Stacking Two Projectors
- Rigging points and clamps

2.1 General guidelines

WARNING: Before installing the projector, read first the safety instructions.

Ambient Temperature Conditions.

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.

Max. ambient temperature : 35°C or 95 °F

Min. ambient temperature : 10 °C or 50 °F

The projector will not operate if ambient air temperature falls outside this range (10°C- 35°C or 50°F-95°F).

Storage temperature: -35°C to +65°C (-31°F to 149°F)

Humidity Conditions

Storage: 0 to 98 % RH Non-condensing

Operation: 0 to 95 % RH Non-condensing

Environment

Do not install the projection system in a site near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust or humidity. Be aware that room heat rises to the ceiling; check that temperature near the installation site is not excessive.

Environment condition check

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 non-effective 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 wantful neglect, abandon or improper use.

Special Care for Laser Beams

Special care should be used when DLP projectors are used in the same room as performant laser equipment. Direct or indirect hitting of a laser beam on to the lens can severely damage the Digital MicroMirror Devices™ in which case there is a loss of warranty

Which screen type ?

There are two major categories of screens used for projection equipment. Those used for front projected images and those for rear projection applications.

Screens are rated by how much light they reflect (or transmit in the case of rear projection systems) given a determined amount of light projected toward them. The 'GAIN' of a screen is the term used. Front and rear screens are both rated in terms of gain. The gain of screens range from a white matte screen with a gain of 1 (x1) to a brushed aluminized screen with a gain of 10 (x10) or more. The choice between higher and lower gain screens is largely a matter of personal preference and another consideration called the Viewing angle. In considering the type of screen to choose, determine where the viewers will be located and go for the highest gain screen possible. A high gain screen will provide a brighter picture but reduce the viewing angle. For more information about screens, contact your local screen supplier.

What image size? How big should the image be?

The projector is designed for projecting an image size : min 1.00m (3.3ft) to max 15 m (49.2ft) (depending on the ambient light conditions), with an aspect ratio of 1.9:1.

2.2 Restricted Access Location

Installation in a Restricted Access Location

The XLM HD30 can only be installed in a Restricted Access Location.

What is a Restricted Access Location (Definition) ?

Definition of a Restricted Access Location:

A location for equipment where both of the following paragraphs apply:

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

What is the Reason for the Applied Restriction?

The Air exhaust on the rear of the Projector can reach high temperatures due to the High Light Output Range of the installed lamp.

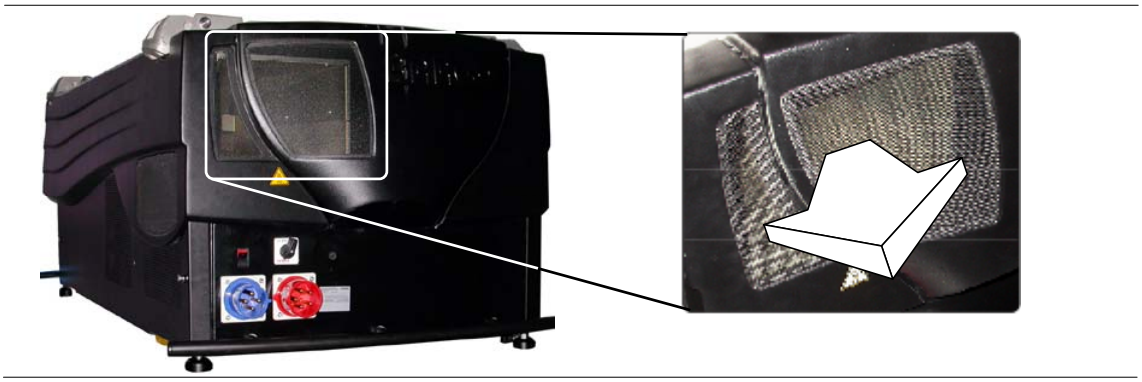


Image 2-1
The air exhaust on the rear side of the projector.

WARNING: Do not touch this Air Outlet Grill when the projector is running. Respect a cool down period for at least 10 minutes after the projector has been switched off before touching this Grill .

2.3 Projector configuration

Which configuration can be used ?

The projector can be installed to project images in four different configurations:

- Front/table
- Rear/table
- Front/ceiling
- Rear/ceiling

Positioning the projector

The projector should be installed perpendicular with the screen on a distance PD and water leveled in both directions. The mounting positions in the following images are shown for a nominal lens position.

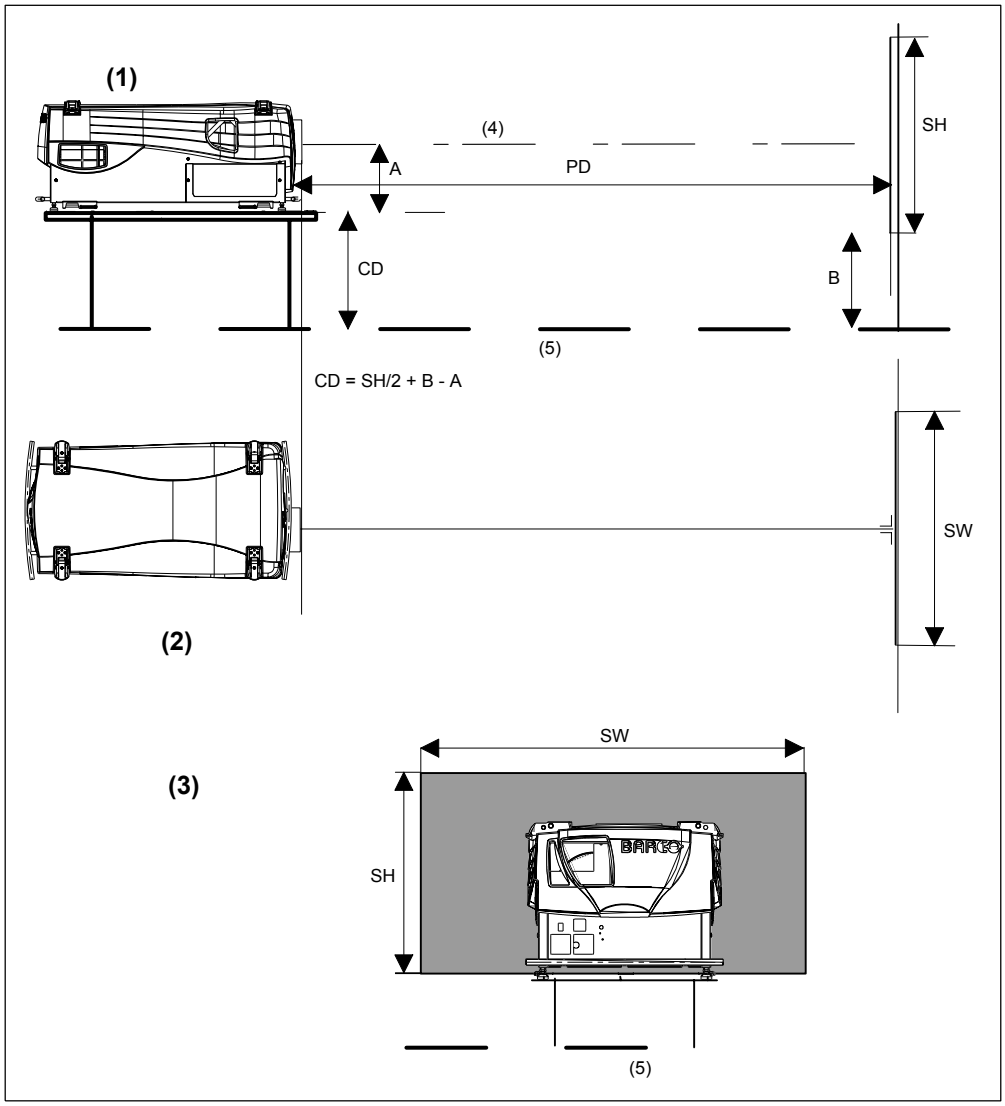


Image 2-2
Front-table configuration

(1) Side view
(2) Top view
(3) Back view
(4) Optical axis projection lens
(5) Floor
CD distance between projector and floor
PD Projector distance, distance between screen and projector
SW Screen width (image width)
SH Screen height (image height)

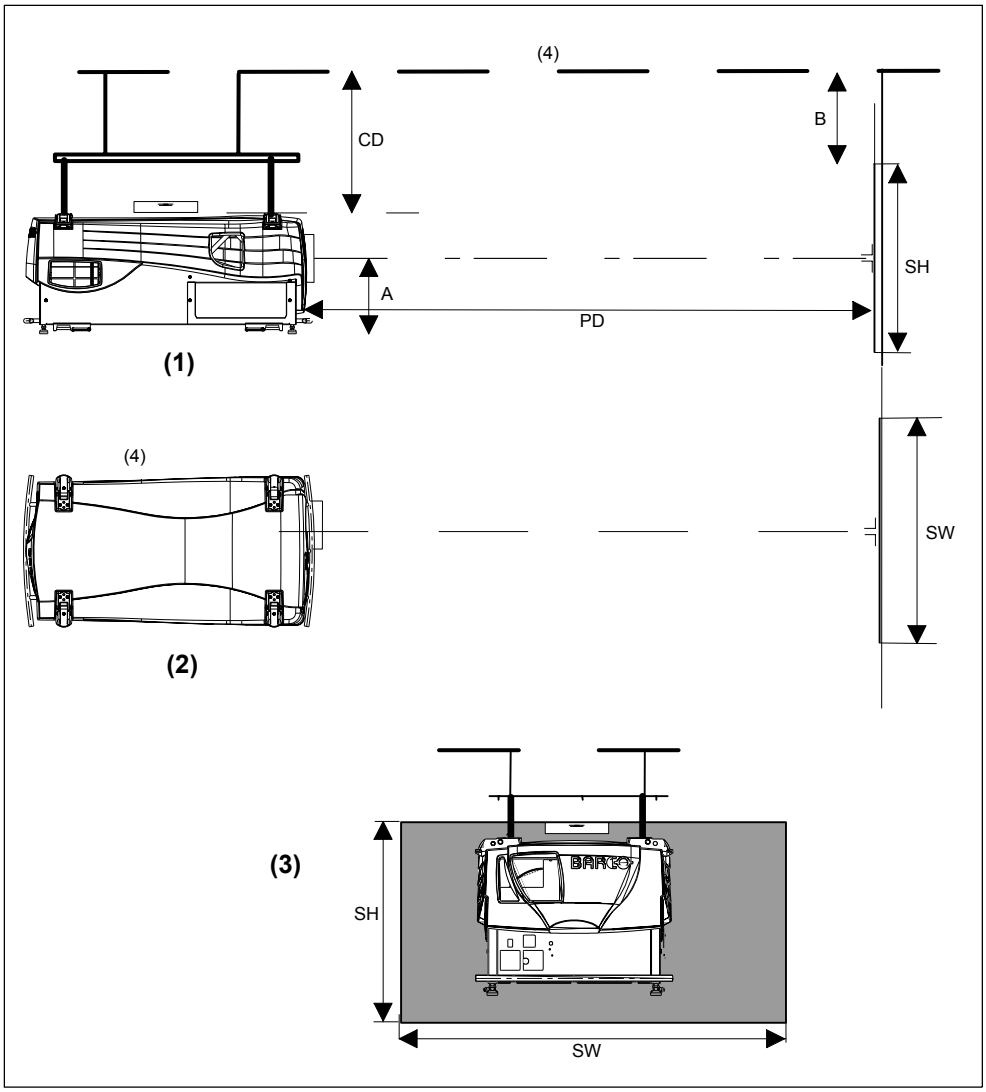


Image 2-3
Front-ceiling configuration

(1) Side view
(2) Top view
(3) Back view
(4) Ceiling
CD distance between projector and ceiling
PD Projector distance, distance between screen and projector
SW Screen width (image width)
SH Screen height (image height)

2.4 Safety Area around projector

Safety area

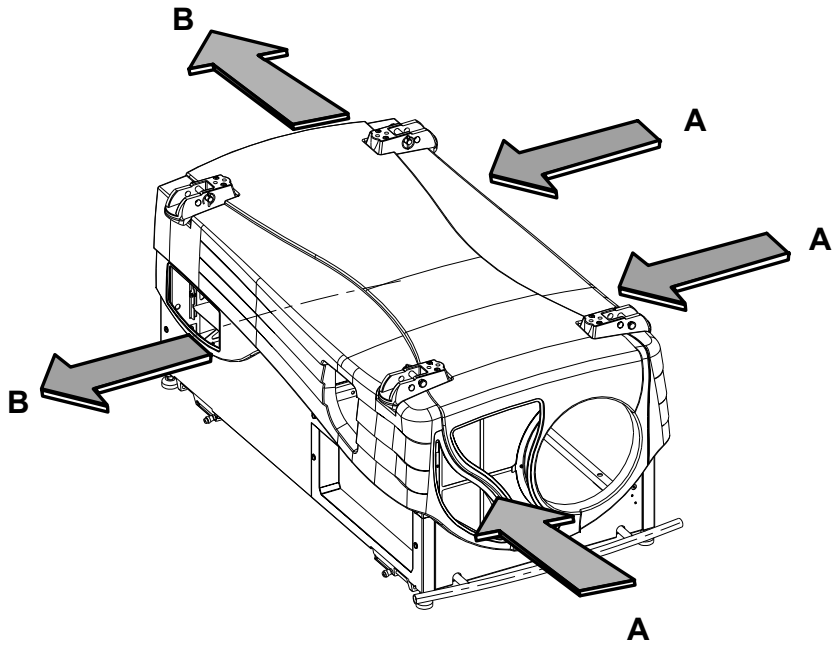


Image 2-4
Air inlet - outlet

A Air inlet
B Air outlet

Due to the air flow, the following free area is recommended :

- Lens side :
  - within Light beam : within 2 meter no combustible materials.
  - air inlet : 0.5 meter free area
- Backside : within 1 meter no combustible materials.
- Left and right side : 0.5 meter

2.5 Lenses

Overview

- Lenses
- Lens formulas
- Lens installation

2.5.1 Lenses

Available lenses

Lenses	Order number
XLD (1.45-1.8:1)	**R9852090**
XLD (1.8-2.4:1)	**R9852092**
XLD (2.2-3.0:1)	**R9852094**
XLD (2.8-5.5:1)	**R9852100**
XLD (5.5-8.5:1)	**R9852920**

2.5.2 Lens formulas

Formulas

Lenses	Formulas
XLD (1.45-1.8:1)	PD_{min}=1.45 x SW PD_{max}=1.80 x SW
XLD (1.8-2.4:1)	PD_{min}=1.80 x SW PD_{max}=2.40 x SW
XLD (2.2-3.0:1)	PD_{min}=2.22 x SW PD_{max}=2.98 x SW
XLD (2.8-5.5:1)	PD_{min}=2.84 x SW PD_{max}=5.50 x SW
XLD (5.5-8.5:1)	PD_{min}=5.50 x SW PD_{max}=8.50 x SW

Due to production tolerances the real distances can differ by 2% from these calculated values.

For critical situations (fixed installs that use the lens at one of its extreme zoom positions) this should be taken into account.

2.5.3 Lens installation

How to install a lens ?

1. Take out the foam rubber.
2. Put the lock handler to the left (A). (image 2-5)
3. Insert the lens in such a way that the connector matches the socket (B). (image 2-6)
4. Push on the lens until the connector seats into the socket. The notch (C) will match the hole in the lens.
5. Pull the handle (A) to the right to lock the lens position.

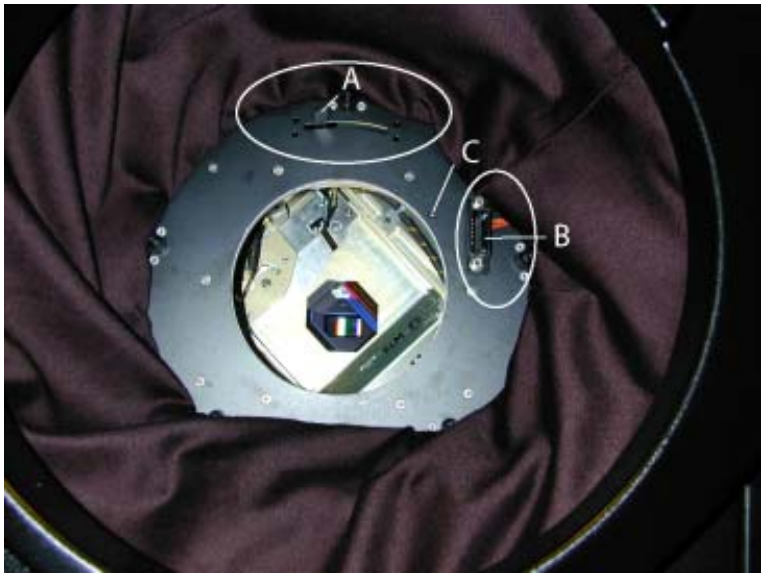


Image 2-5
Lens holder

A Lock handle
B Socket
C Notch

Image 2-6
Mounting lens

For cleaning the lens, see "Cleaning the lens", page 122.

2.6 Mounting the lamp house

CAUTION: Never transport the projector with the lamp casing installed. The lamp casing should always been transported in a vertical way to avoid damaging the lamp.

WARNING: Never attempt to disassemble the lamp from its housing or to dispose of it other than by returning it to Barco. Due to its high internal pressure, the lamp may explode in either hot or cold state.

Necessary tools

- Nut driver 10mm
- Flat screwdriver 5mm

Installing the projection lamp

1. Unplug the projector from the wall outlet.
2. On the input side of the projector, remove the side by turning the 3 quarter turn fastener studs a quarter turn counter clockwise. (image 2-7)
3. Pull the top side of the cover out of its spring locks.
4. Take the lamp casing by both handles carefully out of its shipping box.
5. Place the lamp casing on the optical base plate.
6. Push the lamp casing forward until the lamp slide fully into the projector. Both center pins (A) must match both center (B) holes. (image 2-8)

   If the center pins match the holes, the safety switch (C) will be activated (lamp ignition is possible).

7. Secure the correct position by turning in both spring lock screws.
8. While the side cover is open, check the manometer. The manometer is situate on the top right of the lamp house compartment. (image 2-9)

   The pressure should be ± 1 bar. When lower than 0.5 bar, a corrective action should be taken by qualified service personnel.
9. Hook on the side cover and close the 3 quarter turn fastener studs a quarter turn clockwise.

Image 2-7
Removing side cover

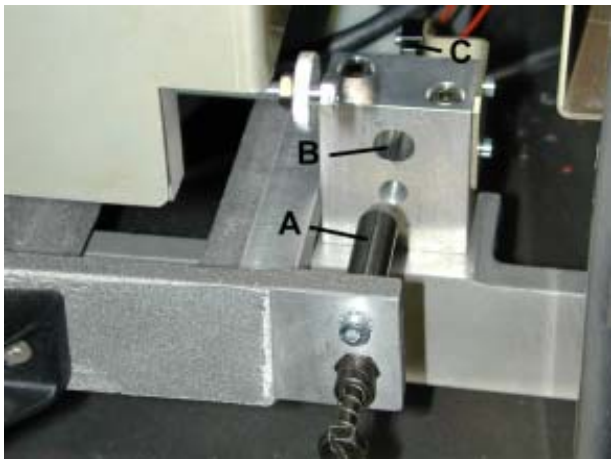


Image 2-8
Lamp insertion

Image 2-9
Cooling liquid pressure

CAUTION: 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.

Check the manometer on regular times, at least when replacing the lamp. The pressure should be ± 1 bar.

2.7 Transporting the projector

What to do?

1. Switch the projector to stand by.
2. Let cool down the projector for at least 15 minutes.
3. Switch off the projector and unplug from the wall outlet.
4. On the input side of the projector, remove the side by turning the 3 bolts a quarter turn counter clockwise (image 2-7).
5. Take off the side cover
6. Loosen the retaining bolts of the lamp (image 2-8).
7. Pull out the lamp casing. Wear heat resistant gloves, the case can be hot.
8. Pack the lamp casing into the original lamp packing and transport it vertically.

2.8 Battery Insertion in the Remote Control

Where to find the batteries

The batteries are not placed in the remote control to avoid remote control operation in its package, resulting in a shorter battery life time.

How to install the batteries

1. Push the cover tab (A) with the fingernail a little backwards and pull upwards the cover top (B). (image 2-10)
2. Slide the cover forwards to remove. (image 2-11)
3. Push the battery body towards the spring and lift it up to remove. (image 2-12)
4. Insert two AA size batteries, making sure the polarities match the + and – marks inside the battery compartment (image 2-12).
5. Insert the lower tab of the battery cover in the gap at the bottom of the remote control, and press the cover until it clicks in place (image 2-11).

Image 2-10
Battery cover unlock

Image 2-11
Battery cover removal

Image 2-12
Battery removal

2.9 Battery insertion in the Rugged remote control

Batteries

The rugged remote control is delivered with 6 rechargeable NiCd batteries, type AA.

Expected charge and discharge cycles : 1000

When replacing the batteries, all batteries should be replaced at the same time.

CAUTION: Risk of explosion if the batteries are replaced by an incorrect type.

How to insert the batteries ?

1. Turn off the remote and remove all cables.
2. Turn the locking screw counter clockwise to free the metallic cover. (image 2-13)
3. Open the metallic cover.
4. Insert the new batteries correctly in the battery compartment. (image 2-14)

   Be sure to install the batteries in the proper polarity and not to short battery terminals together.
5. Set switch A in the ***Charge*** position (left position).
6. Close the metallic cover.
7. Turn the locking screw clockwise to lock the metallic cover.

Image 2-13
Open the battery cover

Image 2-14
Charge switch

A Charge switch

2.10 Charging the batteries of the rugged remote control

2.10.1 Preparing the charger

What can be done ?

The charger can be fitted with one of the four supplied power plugs.

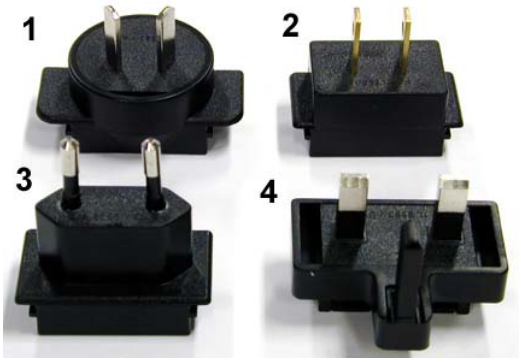


Image 2-15
Possible power plugs

1 For Australia
2 For US/Japan
3 Europe
4 UK

How to mount the correct plug ?

1. Pull the plug to be changed upwards until it is completely removed from the charger. (image 2-16)
2. Place the plug to be mounted on the charger and guide it downwards by using the guiding slots. (image 2-17)
3. Push the plug downwards until it clicks and is locked into the charger. (image 2-18)
4. Check if the plug is well locked.

   It must not stick out of the charger.

Image 2-16
Remove plug

Image 2-17
Guiding grooves

Image 2-18
Mounting the plug

2.10.2 Charging the batteries

When charging the batteries

Charging is required whenever the batteries are low. The status of the batteries can be seen on the main menu (third line) or in the diagnosis menu.

BAT=ACT	The remote is working on batteries, there is no supply via external power source.
BAT=LOW	The batteries are running low

Possible ways to charge the batteries

The batteries can be charged in one of the following ways :

- Via the battery charger
- Via the XLR connection with the projector when the projector is in standby or in operational mode.

How to charge via the adapter ?

1. Plug the female power connector of the charger into the male connector at the right side of the remote control.

2. Connect the charger to the wall outlet.

2.10.3 Power save mode

Why used ?

When working on batteries, indicated on the main menu as BAT=ACT, the power save mode is enabled if there is no key hit within 2 minutes.

A message will be displayed : “POWER SAVE MODE”.

The remote control is automatically switched off after being approximately 10 minutes in the Power Save Mode. Use the ON/OFF switch to reset the Remote control.

2.11 Stacking Two Projectors

How to handle

1. Turn in the four feet of the second projector.
2. Pull the handler A of the second projector a little backwards. (image 2-19)
3. Put the second projector on the first one so that the base plate of the second projector matches with the rigging socket of the first projector.
4. Slide the security pin (handler C) into the hole of the rigging socket of the first projector until the handler jumps into its socket (D). (image 2-20)

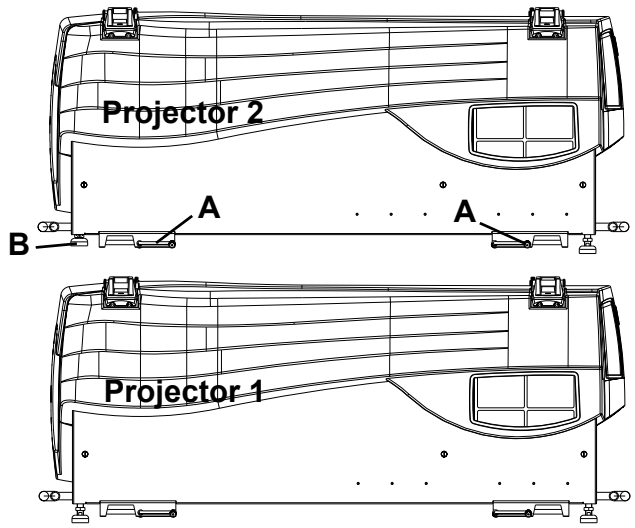


Image 2-19
Stacking two projectors

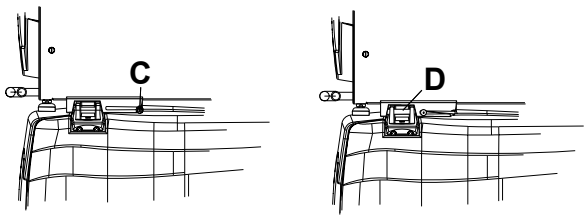


Image 2-20
Stacking : security lock

WARNING: Close always the four security pins when stacking two projectors on each other.

2.12 Rigging points and clamps

Clamps and brackets

Support bars, short and long, are available to be mounted on the projector so that the clamps can be fixed to these bars and the projector can be mounted to a rigging system.

One example drawing is given below, for more possibilities, consult the complete documentation.

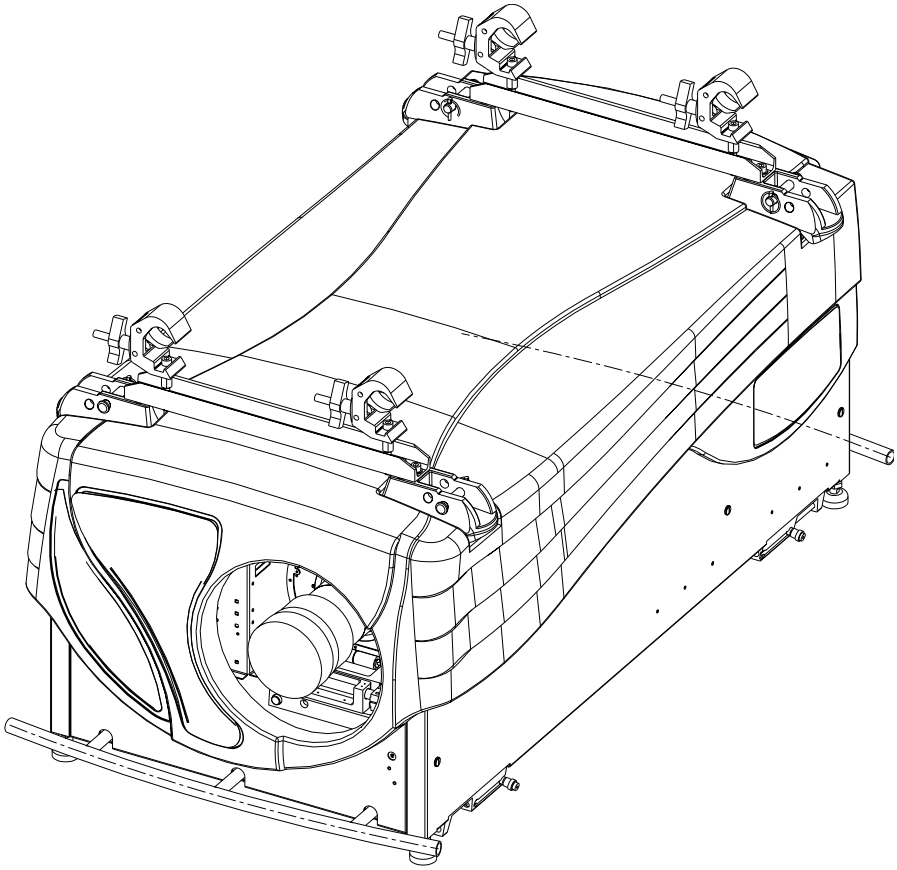


Image 2-21
Rigging kit mounted

Consult a professional structural engineer prior to suspending the ceiling mount from a structure not intended for that use. Always ensure the working load limit of the structure supporting the projector.

WARNING: When mounting the projector to the ceiling or to a rigging system, always mount security chains.

Complete documentation

For a complete documentation consult manual R5976765.

3. CONNECTIONS

Overview

- Power connection
- Connection facilities
- Input source connection
- Communication connection
- Monitor output

3.1 Power connection

Possibilities

The XLM HD30 can be powered on two ways:

- 3 power lines + neutral + earth line on 400V AC (red connector)
- 3 power lines + earth line on 250V AC (blue connector)

Field configurable via a selection switch.

Image 3-1
Possible power connections

A 3 power lines + earth on 250V AC
B 3 power lines + neutral + earth on 400V AC
C Power selection switch
D Power switch

Power consumption : 8 kW

Pin connections of the power plug

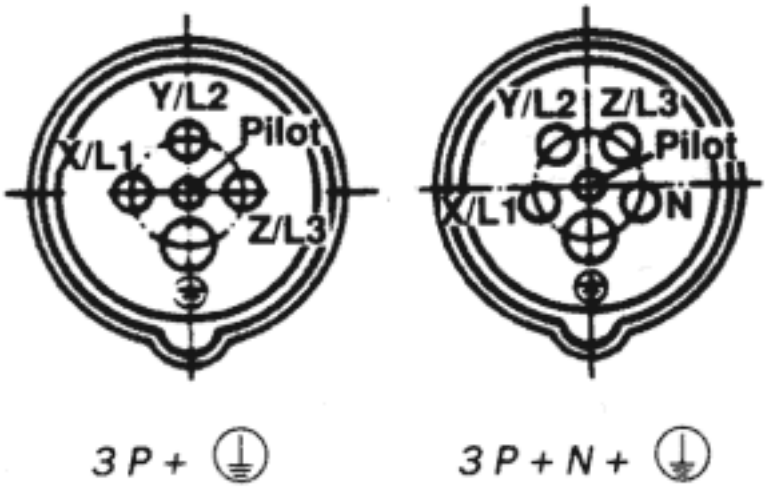


Image 3-2

View from projector side.

How to connect ?

1. Plug the female connector of the power cord into the corresponding male connector on the projector.
   Caution: ***Power Cord****: the cross-sectional area of the conductor in the power supply cord shall be not less than 4 mm² or AWG 10.*
2. Put the voltage selection switch in the correct position.

Switch position	Description
Upper left	3 x 208V
Lower left	3 x 400V

3. Put the male connector of the power cable into the wall outlet.

3.2 Connection facilities

Overview

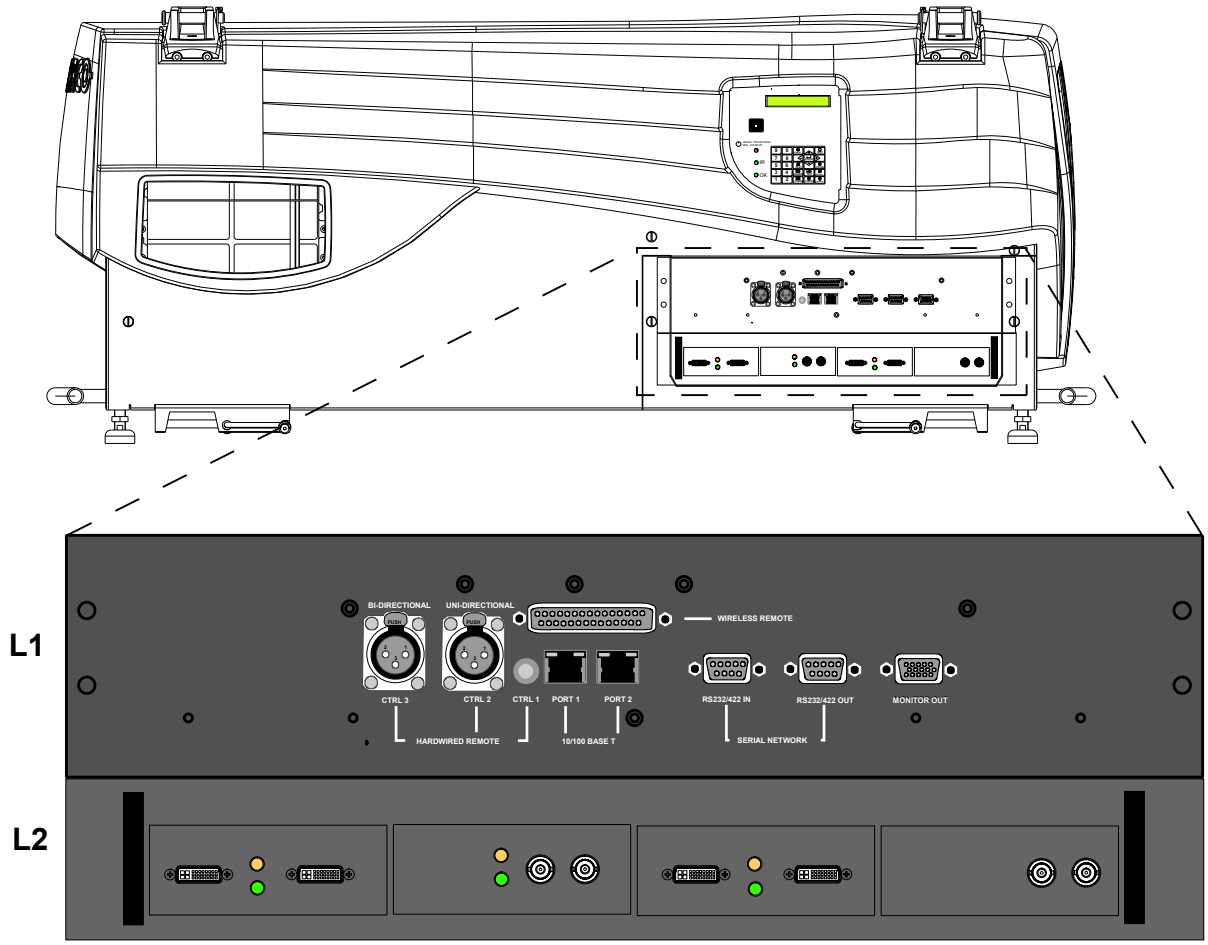


Image 3-3
Input facilities

- Layer 1 : communication input/outputs
  - Hardwired remote
    - CTRL 1 : wired RCU
    - CTRL 2 : Uni-directional hardwired remote
    - CTRL 3 : Bi-directional hardwired remote
  - Ethernet communication
    - Port 1 10/100 BaseT
    - Port 2 10/100 BaseT
  - Wireless remote (optional)
  - Serial network RS232/RS422 In/Out
  - Monitor out
- Layer 2 : source inputs (standard)
  - SDI
  - HDSDI
  - DVI up to UXGA
  - RGBHV analogue

Video and S-Video are optional inputs.

3.3 Input source connection

Overview

- Introduction
- Removing and Inserting an input module
- DVI input module
- SDI input module
- HDSDI input module
- YUV / RG(s)B input module
- RGB analog input module
- CVBS / S-VID input module
- Dummy input module

3.3.1 Introduction

Overview

The source input layer (L2 on image 3-3) consists out of different input modules. Any combination is possible. Within the next topics each input module will be discussed.

If no input module is inserted, the slot must be filled up by dummy input.

3.3.2 Removing and Inserting an input module

How to remove an input module?

1. Push on the release button underneath the input module (1) which you want to remove. At the same time pull out the input module by the grip handle (2). (image 3-4)

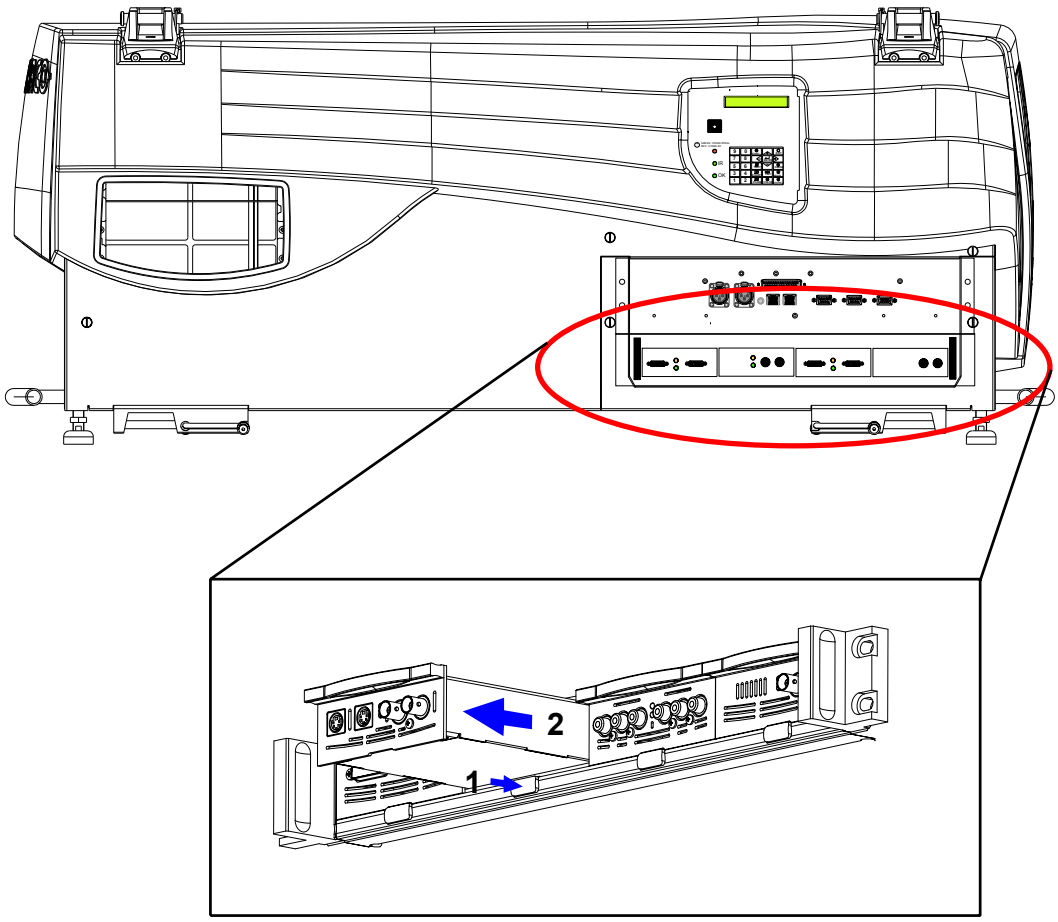


Image 3-4
Module insertion

How to insert an input module ?

1. Gently slide in the input module into a free input slot with the grip handle at the top.
2. Locking in the module by pushing the input module completely into the slot until a definite click is audible.

3.3.3 DVI input module

Technical info:

- Computer generated graphical source.
- DVI data in.
- 162 MHz pixel clock.
- Resolution from VGA to UXGA/60 Hz.
- DVI compliant.
- DVI loop through.
- Amber LED (upper LED on the front side) will be lit indicating module start up.
- When placed in an input slot the green LED (lower LED on the front side) will be lit indicating that the system acknowledges the module.

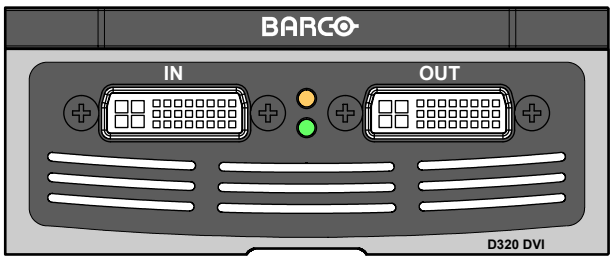


Image 3-5

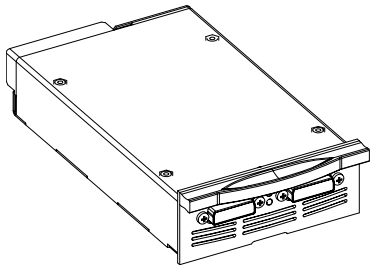


Image 3-6

Order info:

Article No.	Description
R9850960	D325Digitizer DVI input module

3.3.4 SDI input module

Technical info:

- SDI data in.
- SDI loop through.
- 270Mbit/s transmission (SMPTE 259M-C).
- 525/625 interlaced.
- Coax (75 Ohm).
- Amber LED (upper LED on the front side) will be lit indicating recognition of film, either continuous or intermittent film detection.
- When placed in an input slot the green LED (lower LED on the front side) will be lit indicating that the system acknowledges the module.

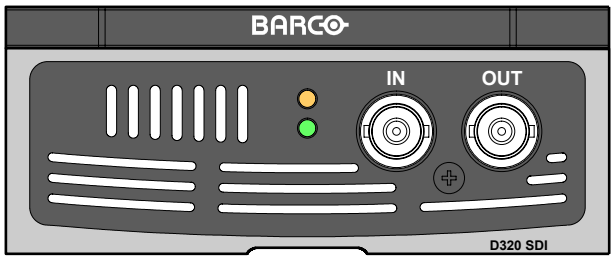


Image 3-7

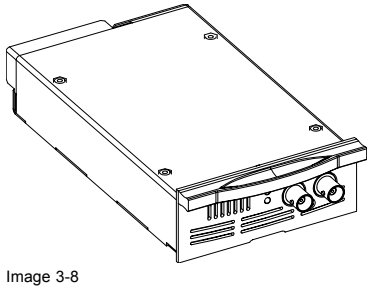


Image 3-8

Order info:

Article No.	Description
R9850970	D325Digitizer SDI input module

3.3.5 HDSDI input module

CAUTION: Maximum two HDSDI input modules may be inserted in one D325Digitizer.

Technical info:

- HDSDI data in (SMPTE292M).
- HDSDI loop through (SMPTE292M).
- Coax (75 Ohm).
- When placed in an input slot the green LED (lower LED on the front side) will be lit indicating that the system acknowledges the module.
- Supported HDSDI standards:
  - Progressive:
    - 1280x720/60/1:1/ (SMPTE 296M)
    - 1280x720/59.94/1:1/ (SMPTE 296M)
    - 1920x1080/30/1:1/ (SMPTE 274M)
    - 1920x1080/29.97/1:1/ (SMPTE 274M)
    - 1920x1080/25/1:1/ (SMPTE 274M)
    - 1920x1080/24/1:1/ (SMPTE 274M)
    - 1920x1080/23.98/1:1/ (SMPTE 274M)
  - Interlaced:
    - 1920x1035/60/2:1/ (SMPTE 260M)
    - 1920x1035/59.94/2:1/ (SMPTE 260M)
    - 1920x1080/60/2:1/ (SMPTE 274M)
    - 1920x1080/59.94/2:1/ (SMPTE 274M)
    - 1920x1080/50/2:1/ (SMPTE 274M)
    - 1920/1080/50/2:1 (1250)/ (SMPTE 295M)
    - 1920x1080/24/Segmented/ (SMPTE 274M)
    - 1920x1080//23.98/Segmented/ (SMPTE 274M)

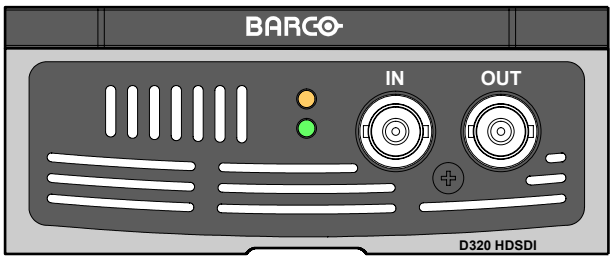


Image 3-9

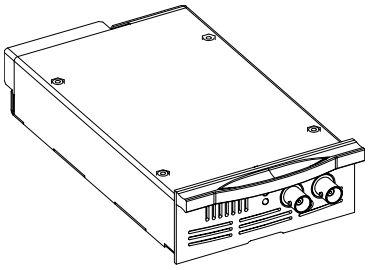


Image 3-10

Order info:

Article No.	Description
R9850980	D325Digitizer HDSDI input module

3.3.6 YUV / RG(s)B input module

Technical info:

- Component Video (BNC)
  - R-Y : 0,7Vpp ±3dB 75 Ohm termination.
  - Ys : 1Vpp ±3dB (0,7V Luma +0,3V Sync) 75 Ohm termination.
  - B-Y : 0,7Vpp ±3dB 75 Ohm termination.
- RG(s)B (BNC)
  - R : 0,7Vpp ±3dB 75 Ohm termination.
  - G(s) : 1Vpp ±3dB (0,7Vpp G + 0,3Vpp Sync) 75 Ohm termination.
  - B : 0,7Vpp ±3dB 75 Ohm termination.
- 3 BNC's loop through connectors.
- Amber LED (upper LED on the front side) will be lit indicating recognition of film, either continuous or intermittent film detection.
- When placed in an input slot the green LED (lower LED on the front side) will be lit indicating that the system acknowledges the module.
- Supports MacroVision™.

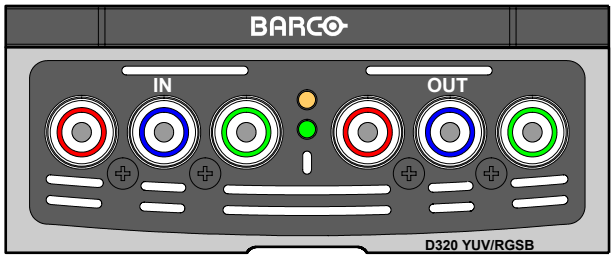


Image 3-11

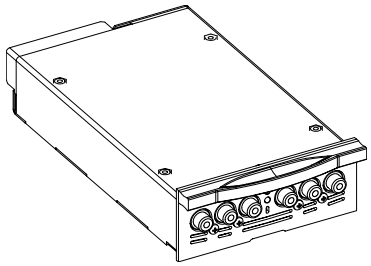


Image 3-12

Order info:

Article No.	Description
R9850940	D325Digitizer YUV / RG(s)B input module

3.3.7 RGB analog input module

Technical info:

- Sub D15 connector for input and loop through.
- R, G, B, Hsync, Vsync : 0 to 1 Vpp ±3dB 75 Ohm termination.
- Black level : 300mV.
- Sync-tip : 0V
- Resolution : SXGA and UXGA version available.
- Amber LED (upper LED on the front side) will be lit indicating recognition of film, either continuous or intermittent film detection.
- When placed in an input slot the green LED (lower LED on the front side) will be lit indicating that the system acknowledges the module.

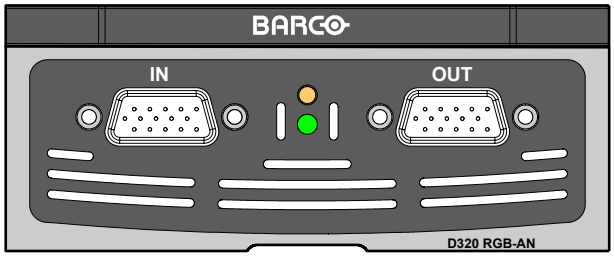


Image 3-13

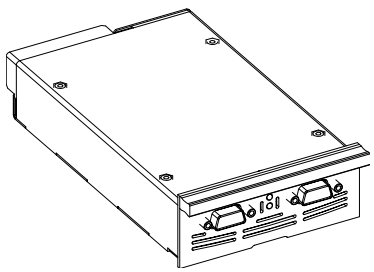


Image 3-14

Order info:

Article No.	Description
R9850950	D325Digitizer RGB analog SXGA input module
R9851710	D325Digitizer RGB analog UXGA input module
R9853120	D325Digitizer RGB analog input module

3.3.8 CVBS / S-VID input module

Technical info:

- Video (BNC)
  - CVBS : 1Vpp ±3dB (0,7V Video +0,3V Sync) 75 Ohm termination.
  - BNC loop through connector.
- S-Video (4 pins DIN)
  - Y : 1Vpp ±3dB (0,7V Video +0,3V Sync) 75 Ohm termination.
  - U/V : 0,7Vpp ±3dB 100% color base, 75 Ohm termination.
  - Chroma : Multi-Standard (PAL / SECAM / NTSC).
  - 4 pins DIN loop through connector.
- Amber LED (upper LED on the front side) will be lit indicating recognition of film, either continuous or intermittent film detection.
- When placed in an input slot the green LED (lower LED on the front side) will be lit indicating that the system acknowledges the module.
- Supports MacroVision™.

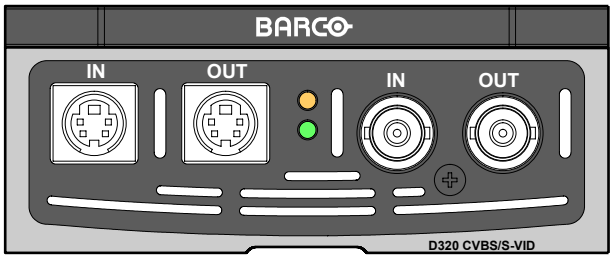


Image 3-15

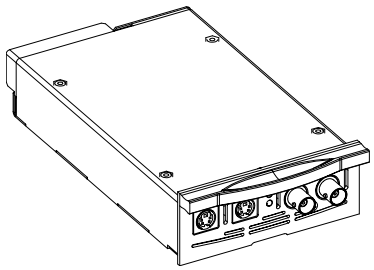


Image 3-16

Order info:

Article No.	Description
R9850920	D325Digitizer CVBS / S-VID input module

3.3.9 Dummy input module

Technical info

- Dimensions : 103 x 181 x 41(W x D x H)

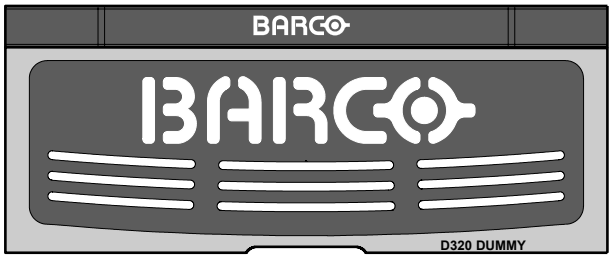


Image 3-17

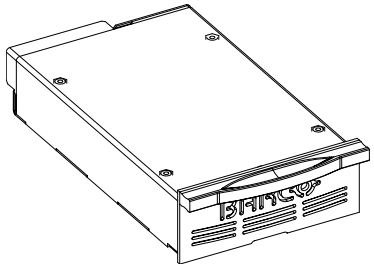


Image 3-18

Order info:

Article No.	Description
R9850930	D325Digitizer dummy input module

3.4 Communication connection

Overview

- RS232/422 IN/OUT Serial network
- Ethernet connection
- Hardwired remote to CTRL 1
- Bi-directional communication port, CTRL 3

3.4.1 RS232/422 IN/OUT Serial network

RS232

An Electronic Industries Association (EIA) serial digital interface standard specifying the characteristics of the communication path between two devices using either DB-9 or DB-25 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 a 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'..

Application

1. Remote control:
   - easy adjustment of projector via a computer.
   - allow storage of multiple projector configurations.
   - wide range of control possibilities.
2. data communication

Pin configuration

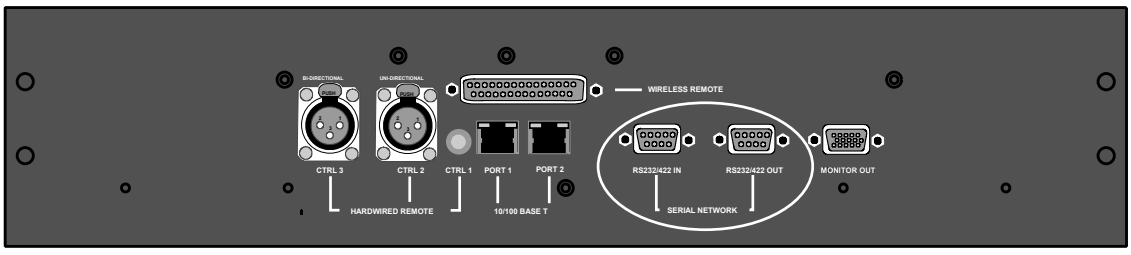


Image 3-19
RS232/RS422 serial network connection

RS232/422 Serial Network IN			
1	Data Carrier Detect (CD)	6 RXC+	Data Set Ready (DSR)
2 RXC-	Receive Data (RD or RX or RXD)	7	Request to send (RTS)
3 TXC-	Transmitted Data (TD or TX or TXD)	8	Clear To Send (CTS)

RS232/422 Serial Network IN			
4TXC+	Data Terminal Ready (DTR)	9	Ring Indicator (RI)
5 GND	Signal Ground (GND)	-	

RS232/422 Serial Network OUT			
1	-	6 RXB+	Data Set Ready (DSR)
2 RXB-	Receive Data (RD or RX or RXD)	7	-
3 TXB-	Transmitted Data (TD or TX or TXD)	8	-
4TXB+	Data Terminal Ready (DTR)	9	-
5 GND	Signal Ground (GND)	-	-

3.4.2 Ethernet connection

Connection

Connect port 1 or port 2 to a LAN by using a straight cable or a crossed cable. The connection is a 10/100 baseT.

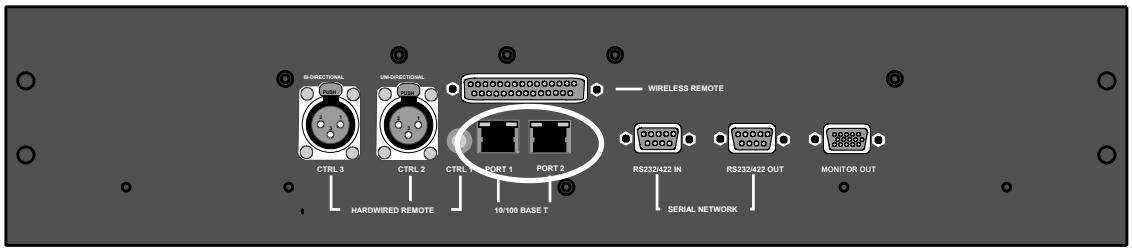


Image 3-20
Ethernet connection

The projector must have an IP address and the IP address of the connected PC must be within the same range of IP addresses.

Once getting access, it is possible to check and manipulate all projector settings. Remote diagnostics, control and monitoring become very simple.

The 2 ports are functionally identical. Both ports are connected via the projector hub.

Pin configuration

Ethernet 10/100 base T Port 1 & 2			
1	TXD+	5	++2.5VA
2	TXD-	6	RXD-
3	RXD+	7	RXD-
4	++2.5VA	8	GNDM

3.4.3 Hardwired remote to CTRL 1

How to connect

1. Plug one end of the remote cable in the connector on the bottom of the RCU. (image 3-21)
2. Plug the other end in the connector in the input panel of the projector labelled CTRL 1.

Specifications of the CTRL 1 input:

- U_{in} = 9V
- I_{max} = 80 mA

• Internal IR receiver can be disabled:
  - o mono jack : on plug in of the jack
  - o stereo jack : on plug in or using an external switch bringing the right channel (B) to ground level. (image 3-22)

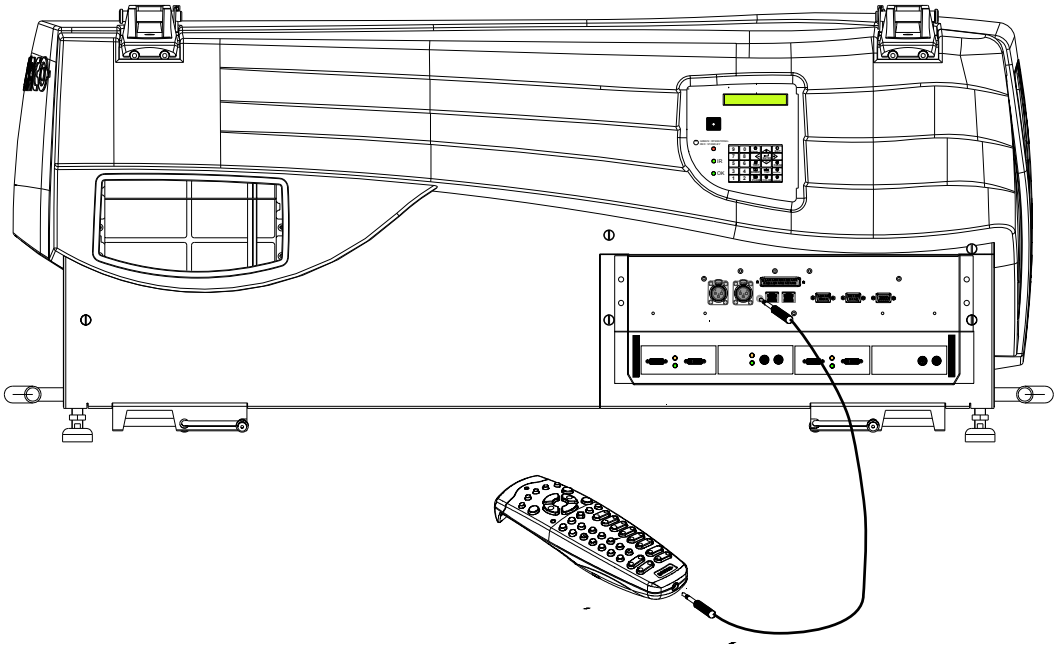


Image 3-21
Hardwired RCU

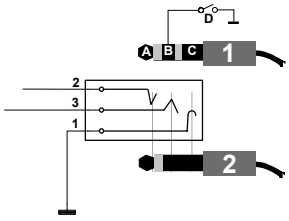


Image 3-22
Stereo jack pin configuration

A tip : left channel
B ring : right channel
C screen : common (GND)
D external switch
1 Stereo jack
2 Mono jack

The Remote connection uses a standard two wire cable terminated on each end with a 3.5 mm male (mono/stereo) phone jack.

This cable is not delivered but is available in most electronic or audio shops.

3.4.4 Bi-directional communication port, CTRL 3

What can be connected

The rugged remote control can be connected to the Bi-directional communication port CTRL 3.

With this rugged remote control all control functions can be taken over. The LCD panel on this rugged remote displays the same information as the panel on the projector itself.

Pin assignment two way connector

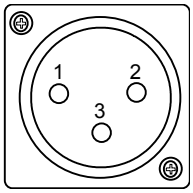


Image 3-23

Pin	Description
1	GND
2	DATA+
3	DATA-

How to connect via a cable ?

1. Plug one end of the twisted pare cable with XLR connector in the two way connector on the rugged remote (CTRL3). (image 3-24)
   Fixed rate : 57600 baud
2. Plug the other end in the Bi-directional connector (CTRL 3) on the projector. (image 3-25)

Image 3-24
Rugged remote control, backside

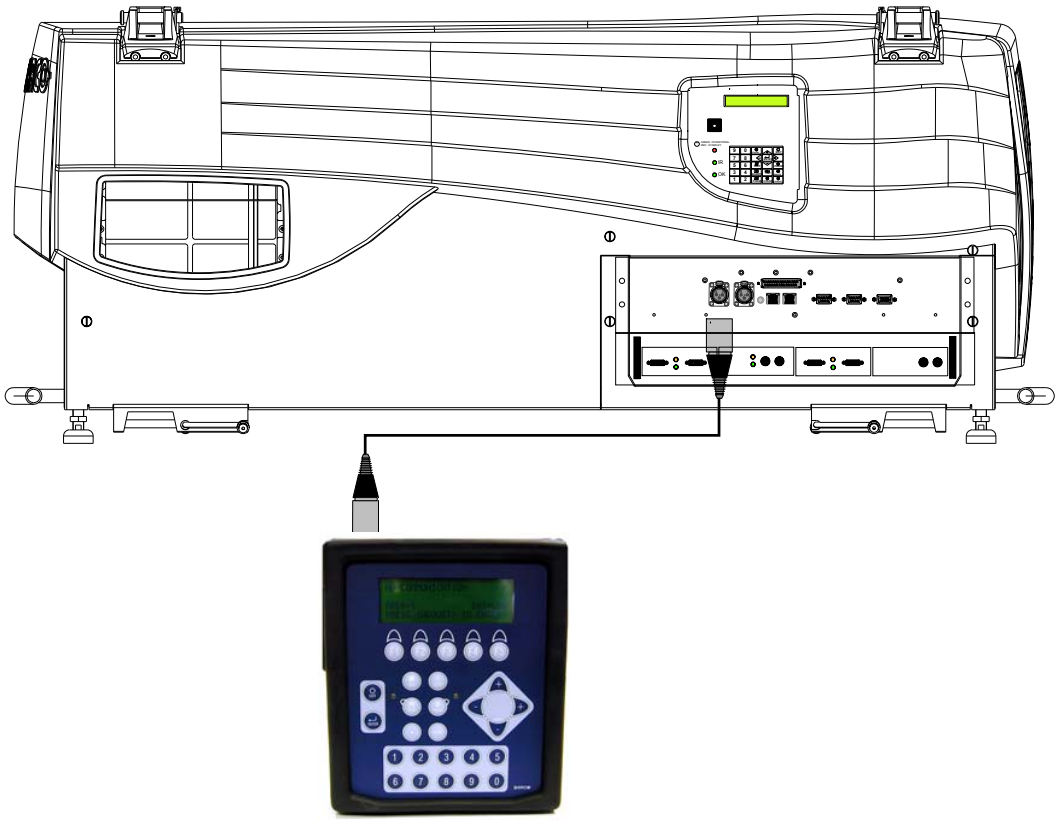


Image 3-25
Bi-directional rugged remote control

How to set up the rugged remote control ?

1. Press **ADJ** key once.

   The main menu of the rugged remote control will be started.
2. Push the cursor key ↑ or ↓ to select *Instal. Settings*.
3. Press **ENTER** to select.
4. Push the cursor key ↑ or ↓ to select *Communication*.
5. Press **ENTER** to select.
6. Push the cursor key ↑ or ↓ to select *Comm. Port*.
7. Press **ENTER** to select.
8. Press **ENTER** to toggle between [Auto], [XLR], [RS232] and eventually [RF]

   Select the corresponding setting. Two are possible in this setup.

Auto	The rugged remote listens to according its priority. XLR has the highest priority.
XLR	The rugged remote is forced to XLR.

3.5 Monitor output

What can be done ?

A monitor can be connected to this output to preview the projected image.

Pin configuration

Monitor output			
1	Red Out	8	Ground
2	Green Out	9	nc
3	Blue Out	10	ground
4	nc	11	nc
5	Ground	12	nc
6	Ground	13	Hor. Sync
7	Ground	14	Vert. Sync

4. GETTING STARTED

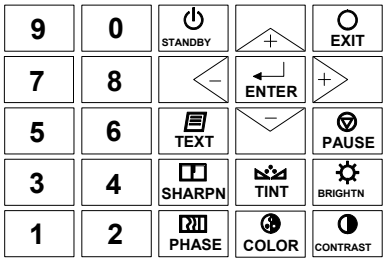
Overview

- Terminology overview RCU and local keypad
- Terminology overview Rugged remote control
- Switching on the projector
- Lamp runtime
- Switching to standby
- Switching off
- Using the RCU
- Using the Rugged remote control
- Projector address
- Controlling the projector
- Quick lens adjustment

4.1 Terminology overview RCU and local keypad

Overview

The following table gives an overview of the different functions associated to the keys.



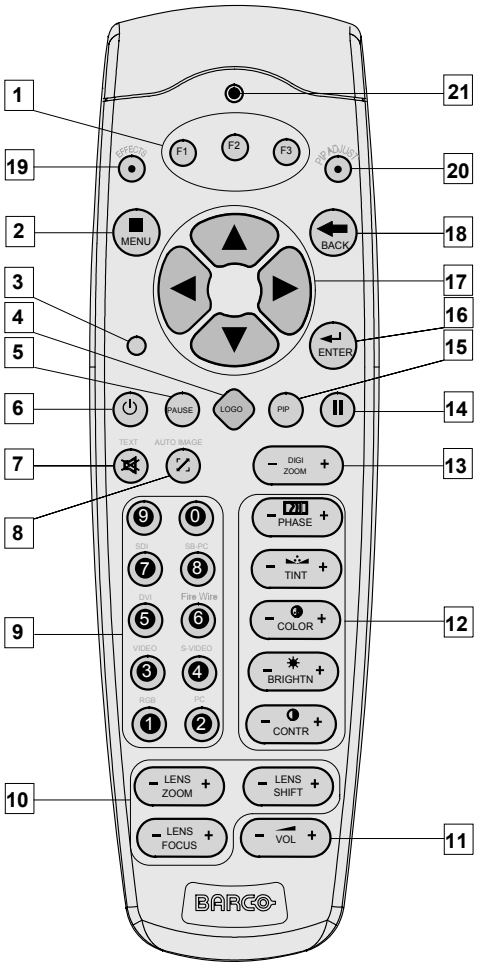


Image 4-1

No.	Key name	Description
1	Function keys	not used
2	MENU	Menu key, to enter or exit the menus.
3	Address key	(recessed key), to enter the address of the projector (between 0 and 9). Press the recessed address key with a pencil, followed by pressing one digit button between 0 and 9.
4	LOGO key	Lens adjustment key
5	PAUSE	to stop projection for a short time, press 'PAUSE'. The image disappears but full power is retained for immediate restarting.
6	STBY	standby button, to start projector when the power switch is switched on and to switch off the projector without switching off the power switch. **Attention : Switching to Standby. When the projector is running and you want to go to standby, press the standby key for 2 seconds.**
7	TEXT	to deactivate or activate the on screen dialog boxes and menus.
8	AUTOIMAGE	not used
9	Digit buttons	direct input selection.
10	Lens control	use these buttons to obtain the desired ZOOM, SHIFT, FOCUS.
11	VOL	Not used
12	Picture controls	use these buttons to obtain the desired picture analog level.
13	DIGI ZOOM	not used
14	FREEZE	press to freeze the projected image.
15	PIP	not used
16	ENTER	to confirm an adjustment or selection in the MENU.
17	Cursor keys	Cursor Keys on RCU or on the local keypad : to make menu selections or to access the menu bar.
18	BACK	to leave the selected menu or item (go upwards to previous menu).
19	EFFECTS	not used
20	PIP ADJUST	window select
21	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)

4.2 Terminology overview Rugged remote control

Overview

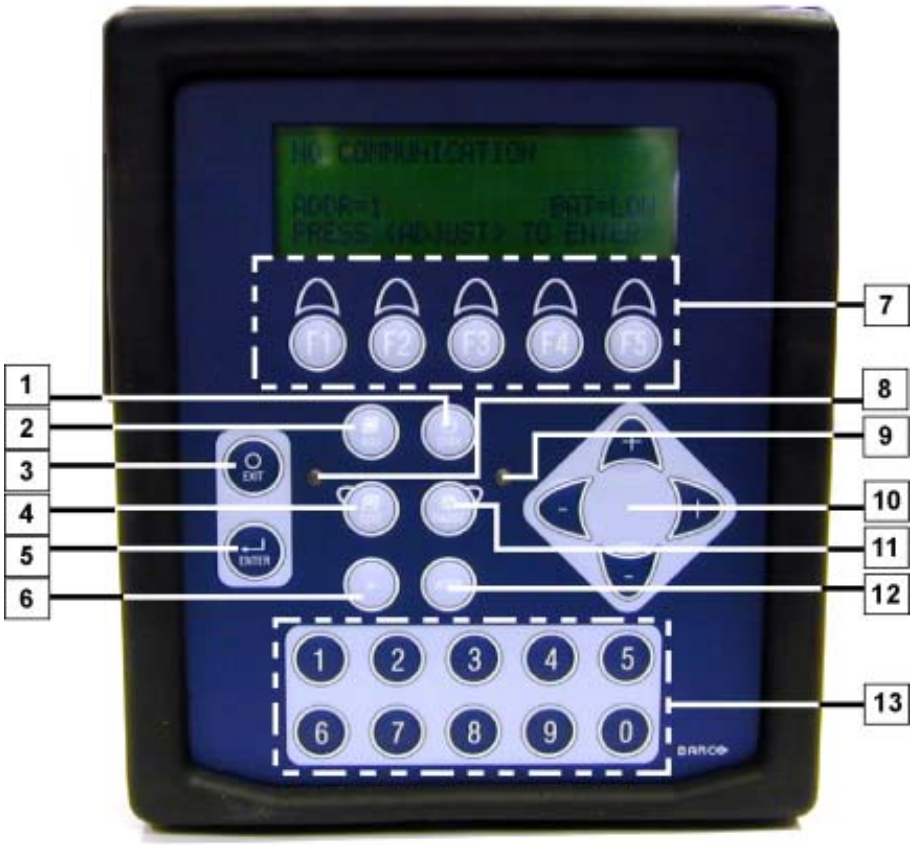


Image 4-2
Rugged remote control

No.	Key name	Description
1	STBY	standby button, to start projector when the power switch is switched on and to switch off the projector without switching off the power switch. **Attention : Switching to Standby. When the projector is running and you want to go to standby, press the standby key for 2 seconds.**
2	ADJ	Adjust key, to enter or exit the menus. corresponds with the Menu key on the remote control. Press ADJ once = entering the local menus of the rugged remote control. Press ADJ twice = entering the menus of the projector.
3	EXIT	to leave the selected menu or item (go upwards to previous menu). Corresponds with the BACK button on the RCU.
4	TEXT	to des-activate or activate the on screen dialog boxes and menus.
5	ENTER	to confirm an adjustment or selection in the MENU.
6	* key	allows to recall the stored Logo (not in PiP mode)
7	Function keys	user programmable keys with functions for direct access.
8	TEXT on LED	red LED to indicate the text status.
9	PAUSE LED	yellow LED to indicate the pause status of the projector
10	Cursor keys	Cursor Keys : to make menu selections or to access the menu bar.
11	PAUSE	to stop projection for a short time, press 'PAUSE'. The image disappears but full power is retained for immediate restarting.

No.	Key name	Description
12	Address key	to enter the address of the projector (between 0 and 9).
13	Digit buttons	direct input selection.

4.3 Switching on the projector

How to switch on

1. Press the tumbler switch in the “1” position (“ON” state indicated by a visible red section of the switch).
   - When “0” is visible, the projector is switched off.
   - When “1” is visible, the projector is switched on.

   The projector starts in standby mode. The projector indication LED is red.

Start image projection

1. Press **Standby** key once on the local keypad or on the remote control.
   Note: *It may take about 60 seconds before image projection, i.e. no projection until the completion of several operations (software initialization, ...).*

   Note: *The identification screen will be displayed during start up.*

At startup, the active errors will be displayed on the screen and on the LCD display for a short period of time.

CAUTION: Pushing the standby key too long, might cause the projector to shut down right after an image is displayed.

The lamp does not start up if a water cooling error is active.

4.4 Lamp runtime

Lamp runtime indication while running

When the total runtime of the lamp is (1000 - 30) hours or more, a warning message will be displayed.

This warning message will be repeated at the next start up. Press **BACK** or **MENU** to remove the message.

The total lifetime of the lamp for a safe operation is 1000 hours maximum, do not use it longer. Always replace with the same type of lamp. Call a Barco authorized service technician for lamp replacement.

Typical lamp lifetime = 500 hours, maximum lamp lifetime = 1000 hours.

WARNING: Using the lamp longer than its maximum lifetime is dangerous as the lamp could explode.

4.5 Switching to standby

How to switch to standby?

1. Press **Standby** to switch the projector to standby.

Switching to Standby. When the projector is running and you want to go to standby, press the standby key for 2 seconds. Do not press any longer on the standby key otherwise the projector will restart.

When switching to standby, it takes 15 seconds before the projector can be switched on again.

4.6 Switching off

How to switch off the projector?

1. Press first **Standby**.
2. Let cool down the projector until the fans stop blowing, at least 15 min.
3. Switch off the projector with the power switch.

4.7 Using the RCU

Pointing to a reflective screen.

1. Point the front of the RCU to the reflective screen surface. (image 4-3)

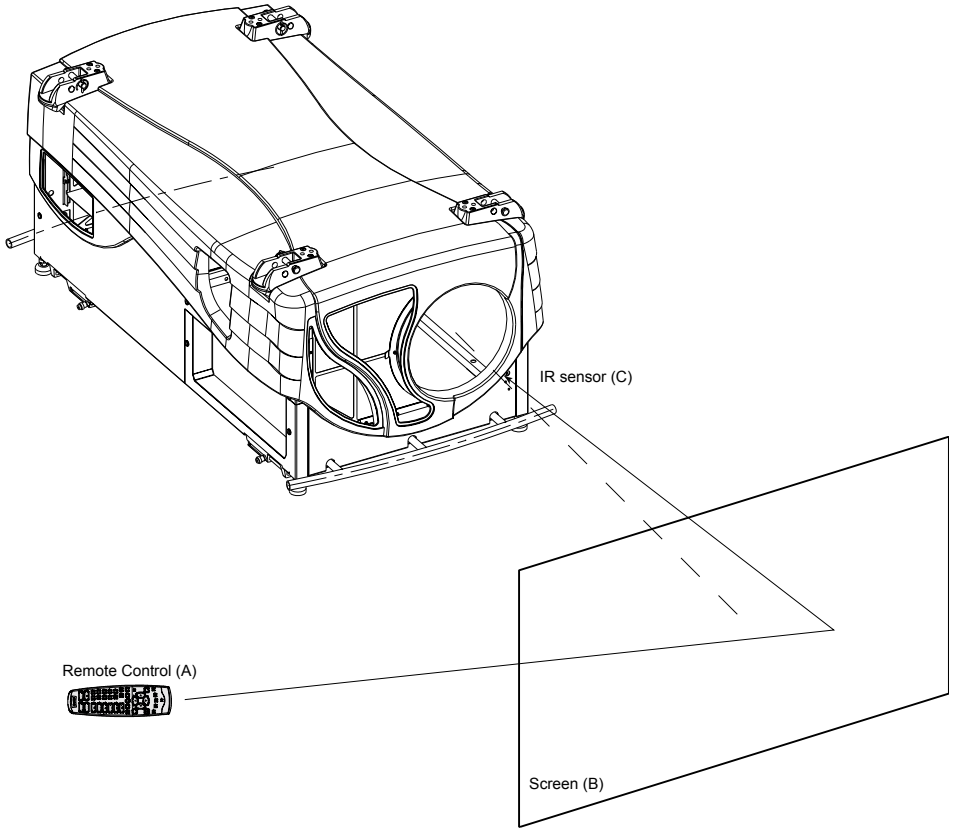


Image 4-3
Pointing RCU to the screen

When using the remote control, make sure you are within the effective operating distance.

The operating distance may be up to 15 m (50ft).

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

Directly to one of the IR sensors

1. When using the wireless remote control, make sure you are within the effective operating distance (30m, 100ft in a straight line) (image 4-4)

   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.

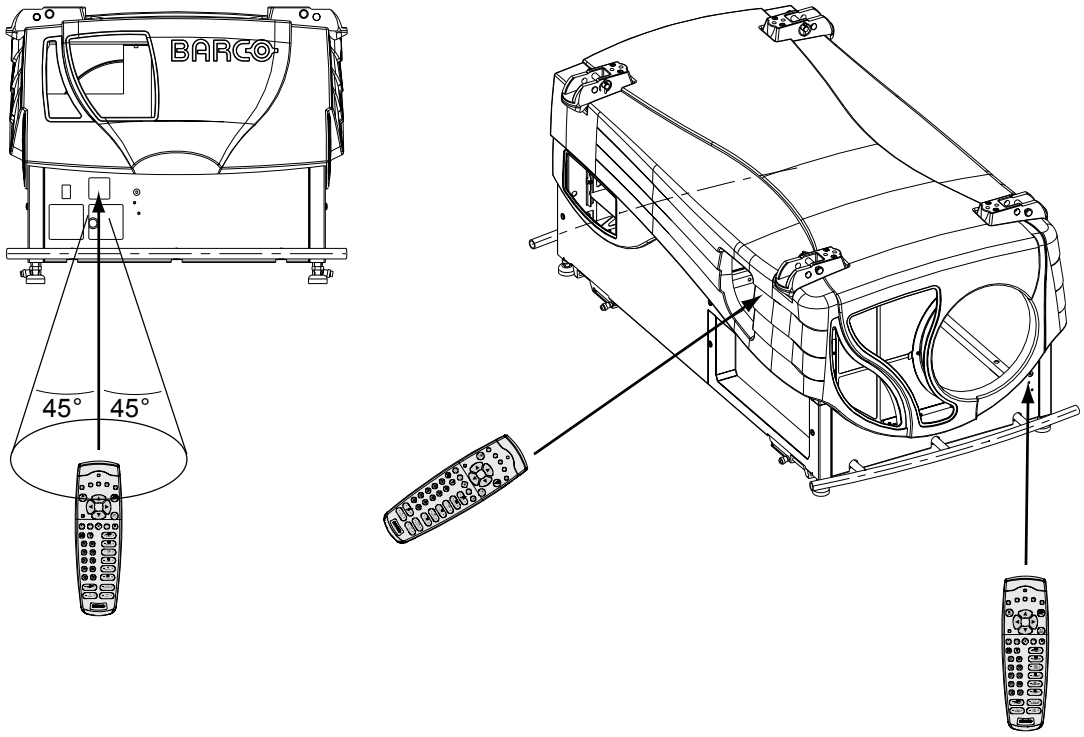


Image 4-4
Remote control to IR sensors

Hardwired remote control

The RCU can be connected via a cable with the projector. For more explanation, see "Hardwired remote to CTRL 1", page 32.

4.8 Using the Rugged remote control

Overview

The rugged remote control can be connected to the projector. For more explanation about the setup, see "Bi-directional communication port, CTRL 3", page 33.

Once set up, the rugged remote control can be used in the same way as the RCU. As this remote control has a limited number of buttons, some functions are hidden in a the menu structure (e.g. picture controls)

4.9 Projector address

Overview

- Address setting
- Displaying and Programming addresses into the RCU
- Displaying and Programming addresses into the rugged remote control

4.9.1 Address setting

Projector address

Address installed in the projector to be individually controlled.

Common address

Default 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, the separate projector should be separately addressable with an RCU or computer. Therefor 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.

Projector controlling.

Every projector requires an individual address between 0 and 255 which can be set in the *Installation* menu.

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

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

A projector will respond to a RCU set to the common address ’0’ regardless of what address is set in the projector itself (common address of projector should also be “0”).

The RCU is default programmed with address 0 , ’common address’.

If it is necessary to control a specific projector, then enter the projector address into the RCU (only when that address is between 0 and 9). The projector with the corresponding address will listen to that specific RCU.

Some projectors may operate in domestic environments where other equipments may listen to the common address “0” , therefore the common address can also be set to “1”.

4.9.2 Displaying and Programming addresses into the RCU

Displaying the Projector Address on the Screen.

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

   The projector’s address will be displayed in a ’Text box’

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. If the address is not entered within 5 seconds, the RCU returns to its default address (zero address) and controls then all projectors in the room.

Address 0 (or 1) should always allow communication with the projector since it is a common address.

4.9.3 Displaying and Programming addresses into the rugged remote control

Displaying the Projector Address on the Screen.

1. Press the **Addr** (address) key .

   The projector’s address will be displayed in a ’Text box’

Programming the projector address into the rugged remote control

1. Press **Addr** key.

   The remote jumps immediately to the address menu.

2. Enter the new address with the numeric keys (number between 1 and 255).
   Or,
   push the ↑ or ↓ key to fill out the desired address.

4.10 Controlling the projector

Input Selection

Key in the corresponding slot number with the digit keys on the remote control. The selected source will be displayed.

Priority setting is done in the Input slots menu.

Picture Controls via the RCU

When an image control is pressed, a text box with a bar scale, icon and function name of the control, e.g. 'brightness...' appears on the screen (only if *Textbox* in the *Display Setup* menu is ON). The length of the bar scale and the value of the numeric indication indicate the current memorized setting for this source. The bar scale changes as the arrows on the RCU are pressed or the + or - buttons on the local keypad.

The picture settings are saved in the image file.

Brightness	Use the + button for a higher brightness. Use the - button for a lower brightness.
Contrast	Use the + button for a higher contrast. Use the - button for lower contrast.
Color	Use the + button for richer colors. Use the - button for lighter colors.
Tint (Hue)	Tint is only active for Video and S-Video when using the NTSC 4.43 or NTSC 3.58 system. Use the + button Use the - button.
Phase	Use the + or - button to adjust the phase.
Freeze	Press **Freeze** to freeze the displayed image.

Picture Controls via the rugged remote control

The image controls are hidden in the *RRC Internal menu*. Press ADJ to enter the *RRC Internal menu* and select the desired control. Press **ENTER** to select that control.

When an image control is selected, a text box with a bar scale, icon and function name of the control, e.g. 'brightness...' appears on the screen (only if *Textbox* in the *Display Setup* menu is ON). The length of the bar scale and the value of the numeric indication indicate the current memorized setting for this source. The bar scale changes as the arrows on the rugged remote control are pressed (up arrow key acts as '+', down arrow key acts as '-').

The picture settings are saved in the image file.

The Pause Key

When the Pause key is pressed, the image projection is stopped, the mechanical shutter is closed.

To restart the image projection:

- Press **PAUSE** key

4.11 Quick lens adjustment

Overview

- Direct Lens Adjustment (RCU)
- Lens adjustment via menus

4.11.1 Direct Lens Adjustment (RCU)

Lens adjustment button on the Remote Control

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

1. Press **LENS ZOOM** button [-] or [+] (A) for correct image size on the screen.
2. Press **LENS FOCUS** button [-] or [+] (C) for an overall focus of the image.
3. Press **LENS SHIFT** button [-] or [+] (B) for correct vertical position of the image on the screen. (image 4-5)

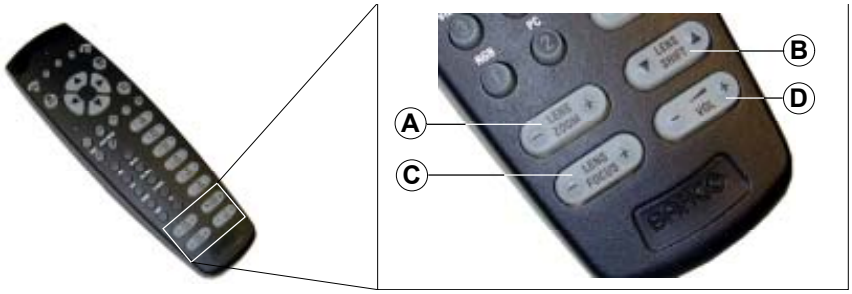


Image 4-5
Lens adjustment with RCU

4.11.2 Lens adjustment via menus

How to adjust

1. Press the **MENU** button on the Remote control.

   The main menu appears on the screen.
2. Select *Installation* and press **ENTER**.
3. Select *Lens* and press **ENTER**.

   The lens menu will be displayed.
4. Select *Zoom/Focus* and press **ENTER**.
5. Use the ↑ and ↓ arrow keys to zoom, use the ← and → arrow keys to focus.
6. Press **BACK** to return to the lens menu.
7. Select *Shift* and press **ENTER**.
8. Use the ↑ and ↓ arrow keys for vertical shift, use the ← and → arrow keys for horizontal shift.
9. Press **BACK** to return to the lens menu.
10. Press **MENU** to exit the menu structure.

5. GETTING USED TO THE MENU STRUCTURE

5.1 How to start up the menus

Box menu structure

The XLM HD30 has a box like menu structure which allows easy access to different parameters for setting up the projector.

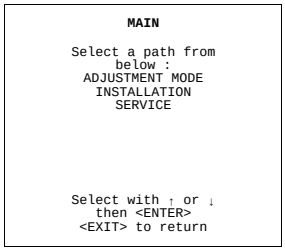
How to activate

1. Press **MENU** on the RCU.

   The main menu will start up. (menu 5-1)

↑ or ↓ keys	• these keys are used to scroll through the available items within a menu box. • these keys are used to make adjustments.
ENTER	• Press **ENTER** to activate a selection • Use **ENTER** to confirm an adjustment.
BACK (EXIT)	• Press **BACK** to return to the previous menu. On rugged remote control, **EXIT**.
MENU (ADJ)	• Press **MENU** to start up the menu boxes • Press **MENU** to exit the menu structure.

Key names between brackets correspond with the keys on the rugged remote control.



Menu 5-1

5.2 Using the Dialog boxes

How to use the dialog boxes ?

Some parameters are modified by means of a dialog box, where selections can be made and/or values can be entered.

The values can be entered/adjusted in several way:

Bar scale adjustment with the arrow keys

1. Use the ↑ or ↓ key or the ← or → to adjust the setting.

   The bar scale will change. The value next to the bar scale will change accordingly.

Value adjustment using the numeric keys on the remote control

1. Press **ENTER** to activate the input field.

   The first digit will be highlighted.
2. Enter the new value with the numeric keys on the remote control.
3. Select the next digit with the ← or → key and repeat step 2.
4. When finished, press **ENTER**.

Value adjustment using the arrow keys on the remote control

1. Press **ENTER** to activate the input field.

   The first digit will be highlighted.

2. Press ↑ or ↓ to increase or decrease the value.
3. Press ← or → to select the next digit to be changed.
4. Press **ENTER** to confirm the changes.

6. ADJUSTMENT MODE

Overview

- Adjustment mode overview
- Start up of the Adjustment mode
- File Service
- Picture Tuning
- Window Adjustment
- Layout Adjustment
- Scenergix

6.1 Adjustment mode overview

Overview

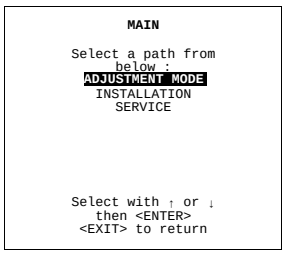
- File service
  - Load
  - Edit
  - Rename
  - Copy
  - Delete
  - Options
- Picture tuning
  - Color space
  - Color temperature
  - Gamma
  - Noise reduction
  - Input balance
- Window adjustment
  - Select source
  - Size
  - Position
  - Z-order
  - Color key
  - Alpha blend
  - No signal color
- Layout adjustment
  - Load layout
  - Rename layout
  - Delete layout
  - Add window
  - Remove window
  - Edit window
  - Keystone
  - Blanking
  - Input locking

6.2 Start up of the Adjustment mode

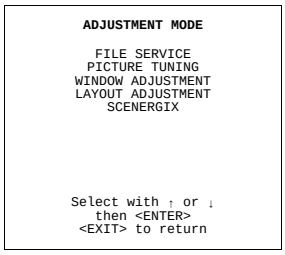
How to start up

1. Select Adjustment mode. (menu 6-1)
2. Press **ENTER** to select.

The adjustment mode menu will be displayed. (menu 6-2)



Menu 6-1



Menu 6-2

6.3 File Service

Overview

- Possible file manipulations
- Start up
- Load file
- Edit file
- Rename
- Copy
- Delete
- File Options

6.3.1 Possible file manipulations

Connecting a new source.

Before using a new source, a correct 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.

Possible file Manipulations

The following file manipulations are possible :

- Load : installation of a file for a new source.
- Edit : editing a loaded file to the source specs.
- Rename : renaming a file.
- Copy : copying a file.
- Delete : deleting a file
- Options : manual / automatic

File attributes

Each file can have a 'read' or 'read-write' attribute.

The following situation can be found on the menus:

- r— : file is read only.
- rw- : file has a read-write attribute and can be edited.

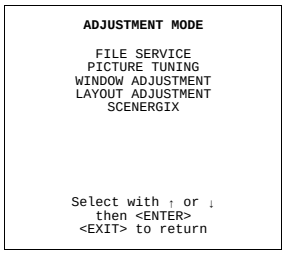
6.3.2 Start up

Start up

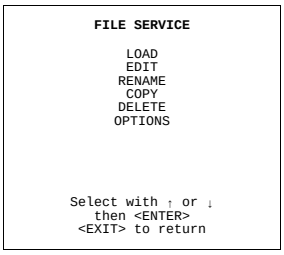
To enter the *File Service*, handle as follow :

1. Push the cursor key ↑ or ↓ to highlight *File Service*. (menu 6-3)
2. Press **ENTER** to select.

The *File Service* menu will be displayed. (menu 6-4)



Menu 6-3



Menu 6-4

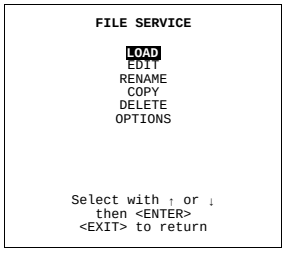
6.3.3 Load file

Start up Load file

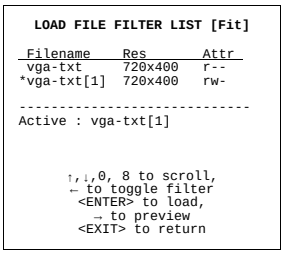
To start up the load file, handle as follow :

1. Push the cursor key ↑ or ↓ to highlight *Load*. (menu 6-5)
2. Press **ENTER** to select.

   The *Load* menu displays the corresponding files depending on the installed filter. (menu 6-6)



Menu 6-5



Menu 6-6

Changing the filter setting

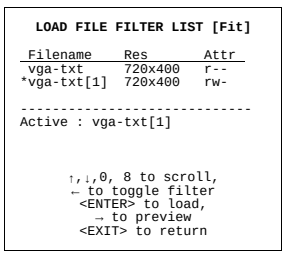
1. Push the cursor key ↑ or ↓ highlight *filter list*.
2. Press **ENTER** to toggle the annotation between brackets.

   [All] : all files that can be loaded will be displayed.

   [Fit] : only the best fitting files will be displayed (with a distinction of ± 2 lines and line duration of ± 300 ns).

How to load a file ?

1. Push the cursor key ↑ or ↓ to select the best fitting file. (menu 6-7)
2. Press **ENTER** to select.
3. Press **ENTER** to confirm the new creation or **EXIT** to return to the load file menu.



Menu 6-7

During a load file, the actual file is displayed next to the indication *Active file* and an '*' is set in the list.

The image is not perfect ?

If the displayed image is not correct after selecting the best fitting file, go to the Edit menu, select the active file and change the File settings.

6.3.4 Edit file

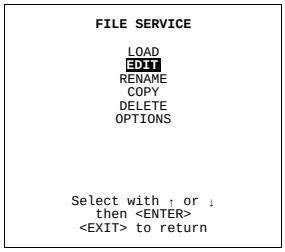
6.3.4.1 Start up

How to start up the Edit menu ?

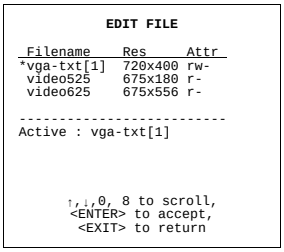
1. Push the cursor key ↑ or ↓ to highlight *Edit*. (menu 6-8)
2. Press **ENTER** to select.

   The Edit file adaptation menu will be displayed (automatic positioned on the actual file). (menu 6-9)
3. Select the file which must be edited (mostly the active file).
4. Press **ENTER**.

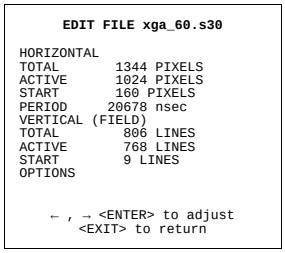
   The file name will be displayed in the upper right corner. (menu 6-10)



Menu 6-8



Menu 6-9



Menu 6-10

6.3.4.2 Changing the settings

Different methods

The 3 different methods to change a setting will be described hereafter. These methods are:

- with the numeric keys on the remote control.
- with the arrow keys selecting the changing digit.
- with the arrow keys counting up or down.

How to change a setting with the numeric keys?

1. Push the cursor key ↑ or ↓ to highlight an item.

   The color of the selected item will change.
2. Press **ENTER** to activate the digits.
3. Enter directly with the numeric keys on the RCU or local keypad the new value.

How to change a setting with the cursor keys?

1. Push the cursor key ↑ or ↓ to highlight an item.

   The color of the selected item will change.
2. Press **ENTER** to activate the digits.
3. Push the cursor key ← or → to select the changing digit.
4. Push the cursor key ↑ or ↓ to scroll to the desired digit.
5. When finished, press **ENTER** to confirm.

How to change a setting with the cursor keys and counting up or down?

1. Push the cursor key ↑ or ↓ to highlight an item.

   The color of the selected item will change.
2. Press **ENTER** to activate.
3. Counting up or down by pushing the cursor key ← or →.

6.3.4.3 Correct value

What is already available during start up?

During the installation of a file with LOAD, the horizontal period, the total number of vertical lines are automatically measured and filled out in the menu table. These values will be available when starting up the EDIT procedure of an active file.

CAUTION: Do not adjust these settings on an active file, they are used to identify the input source file.

How to find the correct values for the item in the Edit file menu?

Horizontal Total Pixels	If the value for "Horizontal Total Pixels" is wrong, sampling mistakes (small vertical bars in the projected image) will be seen in the image. Select "Total" and adjust the pixel quantity. Adjust for zero bars. hint: if the number of bars increase, adjust in the other direction.
Active Pixels	The "Active Pixels" : determine the width of the window on the screen. This value is normally given in the source specifications. If not, adjust until full image is displayed (no missing pixels).
Horizontal Start	number of pixels between the start of the sync signal and the start of the video information.
Horizontal Period	already filled in with the correct value when active file.
Vertical Total Lines	already filled when an active file is selected to be edited
Vertical Active Lines	number of horizontal lines determining the height of the projected image. This value is normally given in the specification of the source. If not, adjust until full image height is displayed (no missing lines)
Vertical Start	number of lines between the start of the sync pulse and the start of the video signal.

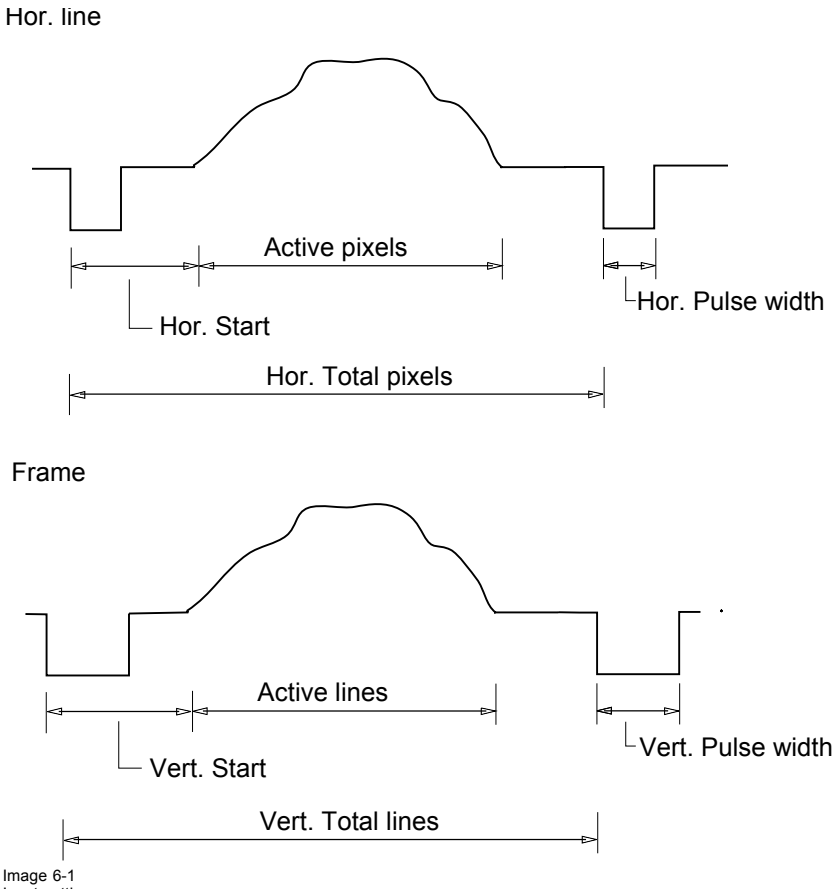


Image 6-1
Input settings

How to install the correct settings for the options in the Edit file menu.

```
        EDIT FILE OPTIONS

Source number           1
Clamp delay             8
Clamp width             20
Film Mode Detection     [on]
Banner Protect          [on]




     Select with ↑ or ↓
  ←, →, <ENTER> to adjust
    <EXIT> to return
```

Menu 6-11

Source number	The source number of a non-active file can be changed to any other source number. This makes it possible to create a file for future source numbers.
Clamp delay	The time between the leading edge of the clamp pulse and the locked edge of the sync pulse. Can be any value between 0 and 255. Use the ↑ or ↓ keys to change the value.
Clamp width	The width of the clamp pulse can be any value between 0 and 255. Use the ↑ or ↓ keys to change the value.
Film mode detection: [On] or [Off]	Detects in the [on] mode if the source is film or video. Use the **ENTER** key to toggle between [on] or [off] When enabled, the hardware looks for tell-tale signs of 3:2 or 2:2 pull-down sequences. These are the result of converting cinema material recorded at 24 frames-per-second to the television frequencies of 60 or 50 interlaced fields per second respectively. When FILM conversion is detected, the original 24 frames-per-second are restored. This avoids deinterlacing artefacts, and results in a perfect artefact-free display. Note that in some cases (video clips, scrolling newstickers,...) FILM and VIDEO material are mixed on one screen. This may confuse the detector and cause it to go into FILM restoration mode. This will cause "jaggies" or motion artefacts. In such cases, disabling FILM mode processing is the best cure.
Banner Protect: [On] or [Off]	Only active when film mode detection is in the on position. Use the **ENTER** key to toggle between [on] or [off]. FILM mode processing normally processes the entire display, but this may cause problems on sources where video and FILM content are mixed. One very common example is scrolling banners at the bottom of the screen (e.g. financial news). For those cases, the "banner protect" feature will force the bottom quarter of the screen to be always processed in VIDEO mode, regardless of the rest of the screen, which may be either video or FILM mode.

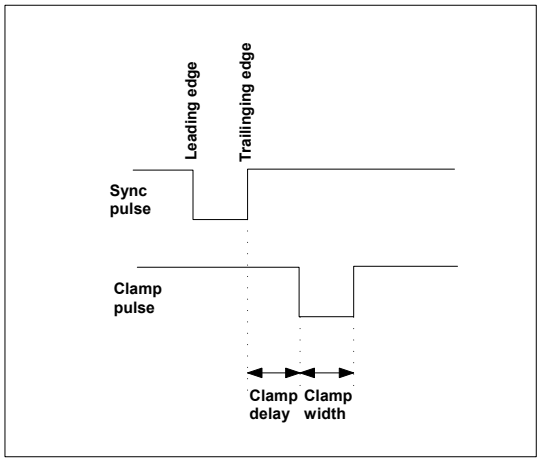


Image 6-2
Clamp delay and width

3:2 pull-down

Method used to map the 24 fps of film onto the 30 fps (60 fields) or 25 fps (50 fields), so that one film frame occupies three video fields, the next two, etc. It means the two fields of every other video frame come from different film frames making operations such as rotoscoping impossible, and requiring care in editing. Some sophisticated equipment can unravel the 3:2 sequence to allow frame-by-frame treatment and subsequently re-compose 3:2. The 3:2 sequence repeats every five video frames and four film frames, the latter identified as A-D. Only film frame A is fully on a video frame and so exists at one time code only, making it the editable point of the video sequence.

2:2 pull-down

The process of transferring 24-frames/sec film format into video by repeating each frame (used for PAL DVD's) as two video fields. (AD)

Artefacts

Undesirable elements or defects in a video picture. These may occur naturally in the video process and must be eliminated in order to achieve a high-quality picture. Most common in analog are cross color and cross luminance. Most common in digital are macroblocks, which resemble pixelation of the video image.

6.3.5 Rename

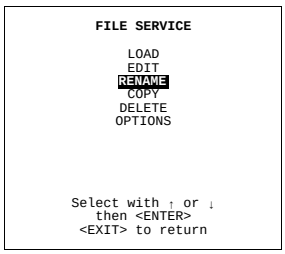
Start Up

To change the name of a selected file :

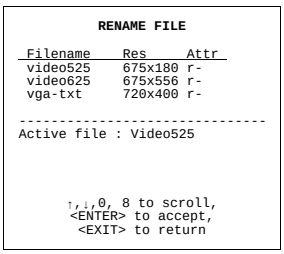
1. Push the cursor key ↑ or ↓ to highlight *Rename*. (menu 6-12)
2. Press **ENTER**.

   The Rename selection menu will be displayed. (menu 6-13)
3. Push the cursor key ↑ or ↓ to select a file name.
4. Press **ENTER** to select.

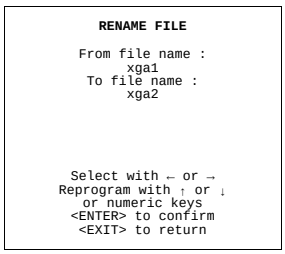
   The Rename file menu will be displayed with the selected file name already filled in, in the 'From file name :' area and in the 'To file name :' area. The first character in the 'To file name :' area is highlighted. (menu 6-14)



Menu 6-12



Menu 6-13



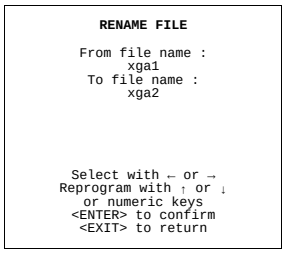
Menu 6-14

Changing the characters

1. Push the cursor keys ← or → to select the desired character. (menu 6-15)
   Or,
   Change that character by pushing the cursor keys ↑ or ↓. Numeric characters can be entered directly with numeric keys on the RCU.
   Or,
   Press **ENTER** to confirm.

   The renamed file is entered in the list of files.
2. Press **EXIT** to return to the Rename menu selection.

   No changes are made.



Menu 6-15

6.3.6 Copy

Start Up

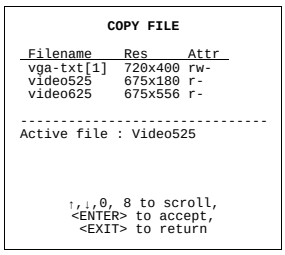
To copy the name of a selected file :

1. Push the cursor key ↑ or ↓ to highlight *Copy*.
2. Press **ENTER**.

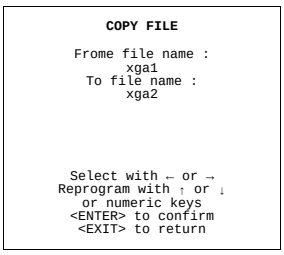
   The Copy selection menu will be displayed. (menu 6-16)

3. Push the cursor key ↑ or ↓ to select a file name.
4. Press **ENTER** to select.

   The Copy file menu will be displayed with the selected file name already filled in, in the 'From file name :' area and in the 'To file name :' area. The first character in the 'To file name :' area is highlighted. (menu 6-17)



Menu 6-16



Menu 6-17

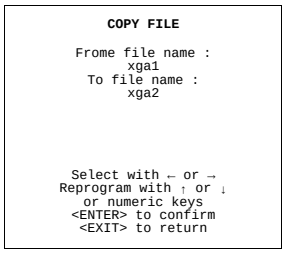
Changing the characters

1. Push the cursor keys ← or → to select the desired character. (menu 6-18)
   Or,
   Change that character by pushing the cursor keys ↑ or ↓. Numeric characters can be entered directly with numeric keys on the RCU.
   Or,
   Press **ENTER** to confirm.

   The copy file is entered in the list of files.

2. Press **EXIT** to return to the Copy menu selection.

   No changes are made.



Menu 6-18

6.3.7 Delete

Start up and delete

To delete a selected file out of the list of files :

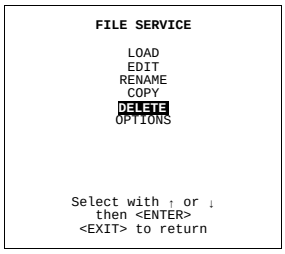
1. Push the cursor key ↑ or ↓ to highlight *Delete*. (menu 6-19)
2. Press **ENTER**.

   The delete selection menu will be displayed. (menu 6-20)

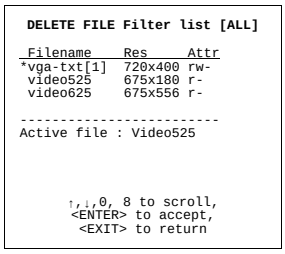
3. Push the cursor key ↑ or ↓ to select a file name.
4. Press **ENTER** to select.

   A confirmation menu "Delete file 'file name'?" is displayed. (menu 6-21)

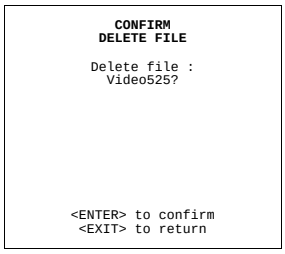
5. Press **ENTER** to delete the file, press **EXIT** if you want to keep it.
   Note: *The active file cannot be deleted.*



Menu 6-19



Menu 6-20



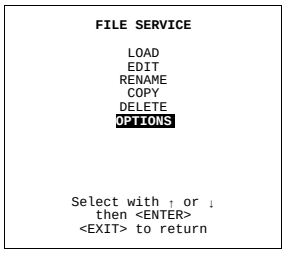
Menu 6-21

6.3.8 File Options

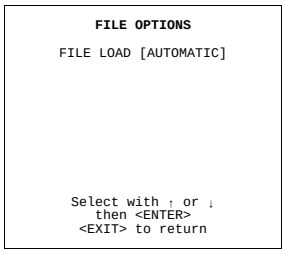
Start up

1. Push the cursor key ↑ or ↓ to highlight *Options*. (menu 6-22)
2. Press **ENTER** to select.

   The option selection menu will be displayed. (menu 6-23)



Menu 6-22



Menu 6-23

File Load

1. Press **ENTER** to toggle between [automatic] and [manual].
   - [automatic] : correct file will be loaded automatically.
   - [manual] : correct file has to be loaded manually.

6.4 Picture Tuning

Overview

- Start up
- Color Space
- Color Temperature
- Gamma
- Noise Reduction
- Input Balance

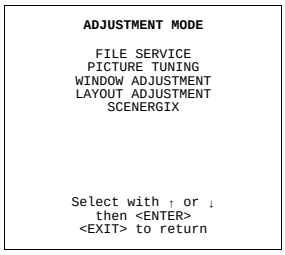
6.4.1 Start up

Start up

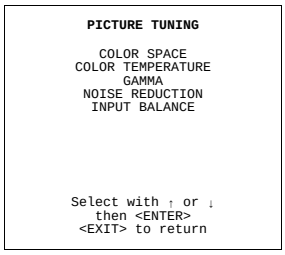
To improve the image quality, the items in the Picture Tuning menu can be toggled or adjusted. To start up the Picture Tuning :

1. Push the cursor key ↑ or ↓ to highlight *Picture Tuning*. (menu 6-24)
2. Press **ENTER** to select.

The picture tuning menu will be displayed. (menu 6-25)



Menu 6-24



Menu 6-25

6.4.2 Color Space

Color space

A color space 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 3 predefined stored values (one projector specific and 2 international standards). A 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.

6.4.2.1 Color Space selection

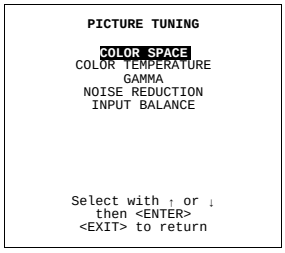
How to select ?

1. Push the cursor key ↑ or ↓ to highlight *Color Space*. (menu 6-26)
2. Press **ENTER** to select.

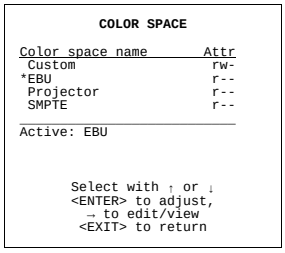
   The *Color Space* selection menu will be displayed. (menu 6-27)

   The actual selected color space is indicated next to *Active* and an '*' is placed before the item in the list.
3. Push the cursor key ↑ or ↓ to highlight the desired color space.
4. Press **ENTER** to select.

   The selected color space will be applied. When *Custom* is selected, the actual custom values will be applied.



Menu 6-26



Menu 6-27

6.4.2.2 Custom color space

How to setup ?

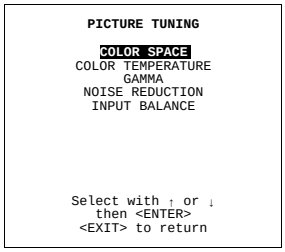
1. Push the cursor key ↑ or ↓ to highlight *Color Space*. (menu 6-28)
2. Press **ENTER** to select.

   The *Color Space* selection menu will be displayed. (menu 6-29)

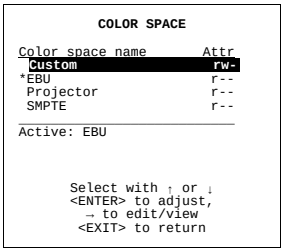
   The actual selected color space is indicated next to *Active* and an '*' is placed before the item in the list.
3. Push the cursor key ↑ or ↓ to highlight Custom.

The *Edit color space* menu opens. (menu 6-30)

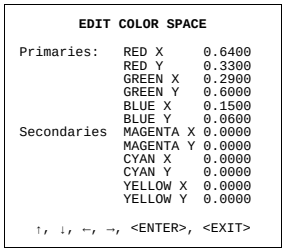
4. Push the cursor key ↑ or ↓ to highlight one of the primary or secondary colors which must be changed and press **ENTER**.
5. Use the cursor keys to change the value or enter a new value with the digit keys.



Menu 6-28



Menu 6-29



Menu 6-30

Note that it is common practice to set the targets outside the projector color space. This implies there would be clipping if a fully saturated input was applied. In normal scenes, this does not happen, and the extra gain or saturation helps balance the overall lock. If clipping occurs, there will typically be a hue shift when one of R, G, B goes into clip ahead of the others.

6.4.3 Color Temperature

6.4.3.1 Color Temperature selection

What can be done ?

The color temperature can be selected according to the type of source.

There are 3 different preset color temperatures, 3200 K, 6500 K and 9300 K. These calibrated presets can be selected and will provide optimum color tracking. The projector however allows the setting of a personal color temperature in *custom* or to choose for Projector white.

Projector white

Native white of the projector (non calibrated white).

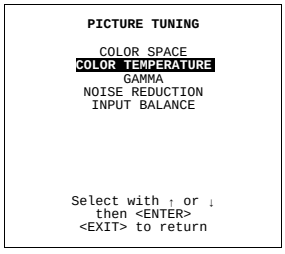
How to select ?

1. Push the cursor key ↑ or ↓ to highlight *Color Temperature*. (menu 6-31)
2. Press **ENTER** to select.

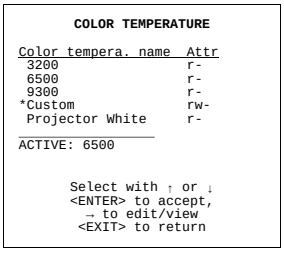
   The *Color Temperature* selection menu will be displayed. (menu 6-32)

   The actual selected color temperature is indicated next to *Active* and an '*' is placed before the item in the list.
3. Push the cursor key ↑ or ↓ to highlight the desired value.
4. Press **ENTER** to select.

   The selected color temperature will be applied. When entered on *Custom*, the actual custom values will be applied.



Menu 6-31



Menu 6-32

6.4.3.2 Custom color temperature

How to adjust ?

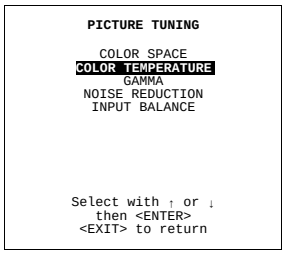
1. Push the cursor key ↑ or ↓ to highlight *Color Temperature*. (menu 6-33)
2. Press **ENTER** to select.

   The *Color Temperature* selection menu will be displayed. (menu 6-34)

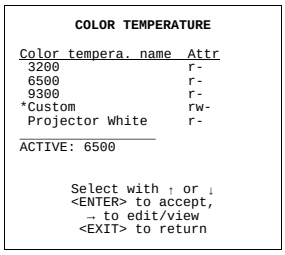
   The actual selected color temperature is indicated next to *Active*.
3. Push the cursor key ↑ or ↓ to highlight *Custom*.
4. Press → (right cursor key) to activate the cursor adjustments

   The gain dialog box will be displayed. (image 6-3)
5. Use the cursor key ↑ or ↓ to select the color. Adjust with ← or → key.

   The value can change between 0.00 and 1.99.



Menu 6-33



Menu 6-34

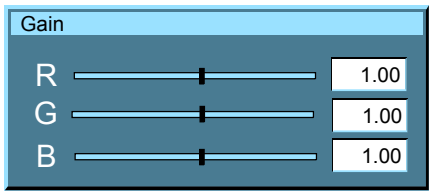


Image 6-3

6.4.4 Gamma

What can be adjusted ?

With the gamma correction adjustment, it is possible to accurately set the gamma of the projector image.

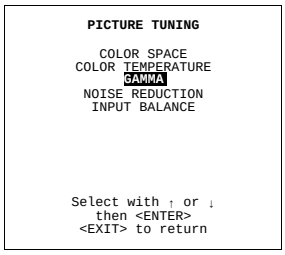
Gamma

The transfer characteristics of most cameras and displays are nonlinear. For a display, a small change in amplitude when the signal level is small produces a change in the display brightness level, but the same change in amplitude at a high level will not produce the same magnitude of brightness change. This nonlinearity is known as gamma. Different gamma curves are available to compensate the nonlinearity.

Changing the gamma value

1. Push the cursor key ↑ or ↓ to highlight *Gamma*. (menu 6-35)
2. Press **ENTER** to select.
3. Change the gamma value by pushing the cursor key ← or → until the desired value is reached.
   Note: *Default value of gamma : 2.2*

4. Press **EXIT** to return to the *Picture Tuning* menu.



Menu 6-35

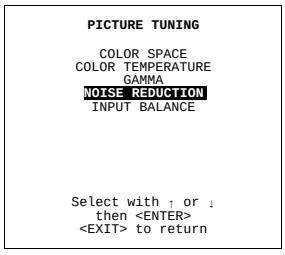
6.4.5 Noise Reduction

Purpose

Reduces noise and pixel jitter in all video and data sources

Changing the noise reduction value.

1. Push the cursor key ↑ or ↓ to highlight *Noise Reduction*. (menu 6-36)
2. Press **ENTER** to select.
3. Change the value by pushing the cursor key ← or → until the desired noise level is reached.
4. Press **EXIT** to return the *Picture Tuning* menu.



Menu 6-36

6.4.6 Input Balance

Overview

- Introduction to Input Balance
- Adjusting the input balance
- Input balance for YUV signals

6.4.6.1 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 6-4 , 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 6-5

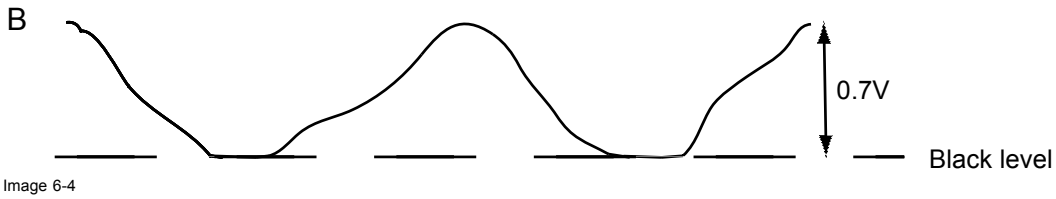


Image 6-4

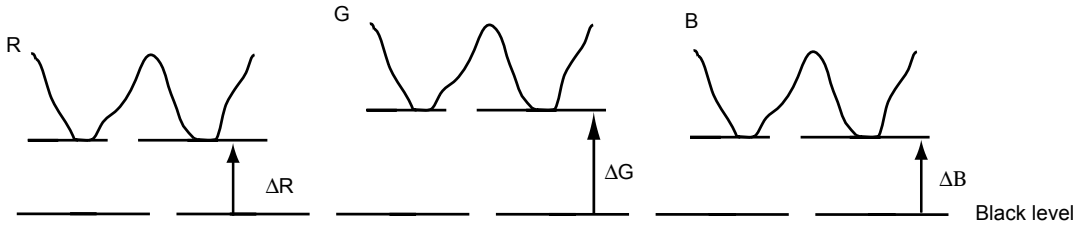


Image 6-5

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.

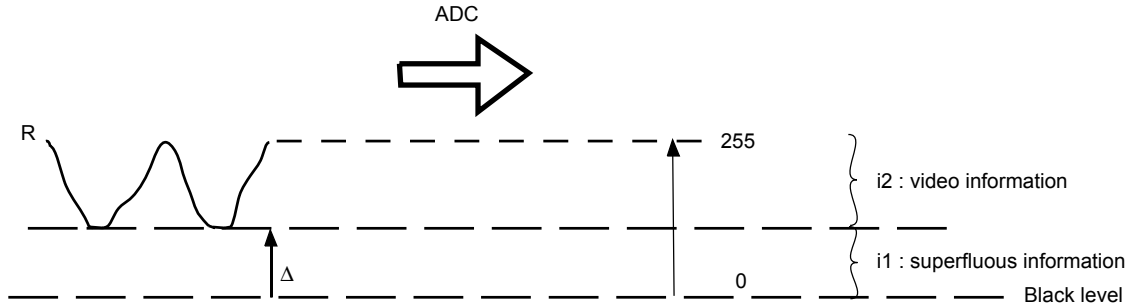


Image 6-6

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 allow 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).

6.4.6.2 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

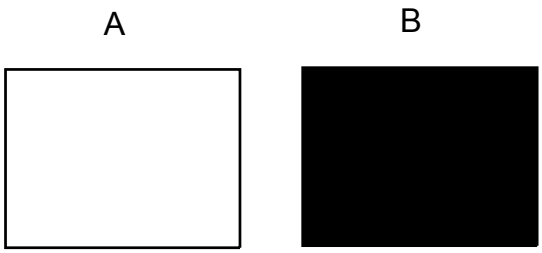


Image 6-7

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.

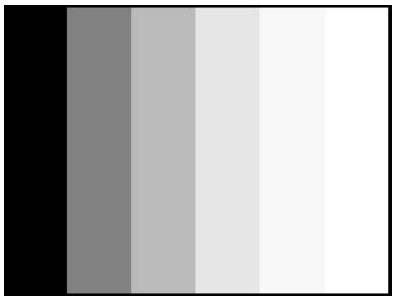


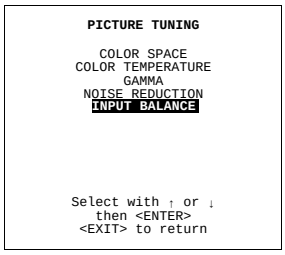
Image 6-8

Black balance

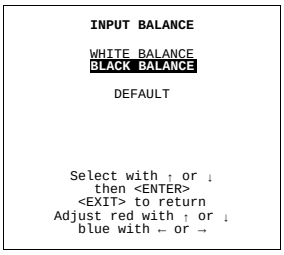
1. Push the cursor key ↑ or ↓ to highlight *Input balance*. (menu 6-37)
2. Press **ENTER** to select.

   The *Input balance* menu will be displayed. (menu 6-38)
3. Push the cursor key ↑ or ↓ to highlight *Black balance*.
4. Adjust the red black level on a minimal value
5. Press **ENTER** to select.
6. Adjust the Brightness to a maximum value until there is just no green noise visible in the black areas.
7. Adjust with the ← or → cursor keys until there is no red noise visible in the black areas.
8. Adjust with the ↑ or ↓ cursor keys until there is no blue noise visible in the black areas.

9. Set the brightness back to its normal value.



Menu 6-37

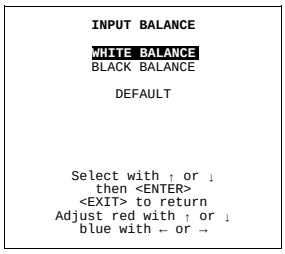


Menu 6-38

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

White balance

1. Push the cursor key ↑ or ↓ to highlight *White Balance*. (menu 6-39)
2. Press **ENTER** to select.
3. Adjust gain red to on its lowest value. Do the same for gain blue.
   Adjust contrast to a maximum value until the green noise becomes visible in the white areas and return one step.
4. Adjust gain red with the ← or → cursor keys until the red noise becomes visible in the white areas and return one step.
5. Adjust gain blue with the ↑ or ↓ cursor keys until the blue noise becomes visible in the white areas and return one step.
6. Put the contrast back on its normal value.



Menu 6-39

Select *Default* to return to the factory default values.

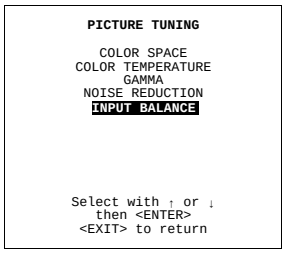
6.4.6.3 Input balance for YUV signals

How to adjust ?

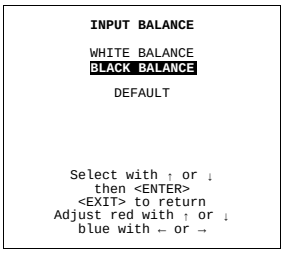
1. Push the cursor key ↑ or ↓ to highlight *Input balance*. (menu 6-40)
2. Press **ENTER** to select.

   The *Input balance* menu will be displayed. (menu 6-41)
3. Push the cursor key ↑ or ↓ to highlight *Black balance*.
4. Decrease the brightness a lot.
5. Adjust the red balance with the ← or → cursor keys until the red noise becomes visible in the black areas.
6. Adjust the blue balance with the ↑ or ↓ cursor keys until the blue noise becomes visible in the black areas.
7. Increase the brightness until the black areas displays approximately 50% white noise.

8. Correct Red and Blue Black balance adjustment in such a way the blue and red noise are just visible and a small brightness increase maintain a grey color.



Menu 6-40



Menu 6-41

Use *Default* to return to the factory settings.

Checking the white balance

There is no adjustment procedure for the white balance.

6.5 Window Adjustment

Overview

- Start up
- Select Source
- Size Adjustment
- Window Position
- Z-order
- Color Key
- Alpha Blending
- No Signal
- Exit the Window adjustment menus

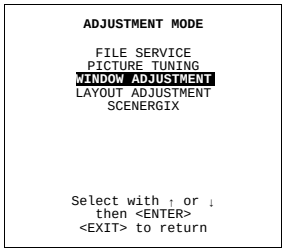
6.5.1 Start up

Start up

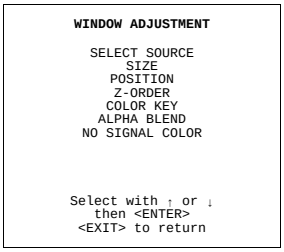
The window manipulations can be managed with the Window Adjustment menus. To start up the Window Adjustment :

1. Push the cursor key ↑ or ↓ to highlight *Window adjustment*. (menu 6-42)
2. Press **ENTER** to select.

   The window adjustment menu will be displayed. (menu 6-43)



Menu 6-42



Menu 6-43

6.5.2 Select Source

What has to be done ?

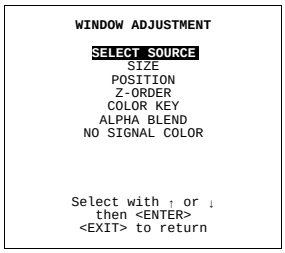
The source (window) on which the adjustments should be performed can be selected with this menu item.

A source is displayed within a window.

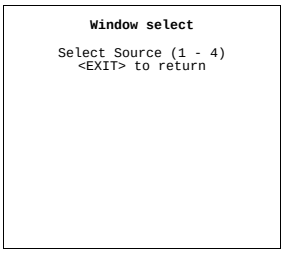
How to select

1. Push the cursor key ↑ or ↓ to highlight *Select Source*. (menu 6-44)
2. Press **ENTER** to select.

   A window select message will be displayed. (menu 6-45)
3. Enter the source number with the digit keys on the remote control. Press **ENTER** or wait a while. The message disappears.



Menu 6-44



Menu 6-45

Direct source selection of the PiP window is possible by pressing PiP adjust + source number.

6.5.3 Size Adjustment

What can be done ?

The size of the active window can be adjusted in a vertical or horizontal way.

When adjusting the vertical size, the upper side of the image is fixed (table and ceiling mounted configurations) and only the lower side can be moved to its exact position.

When adjusting the horizontal size, the left side of the image is fixed and only the right side can be moved to its exact position.

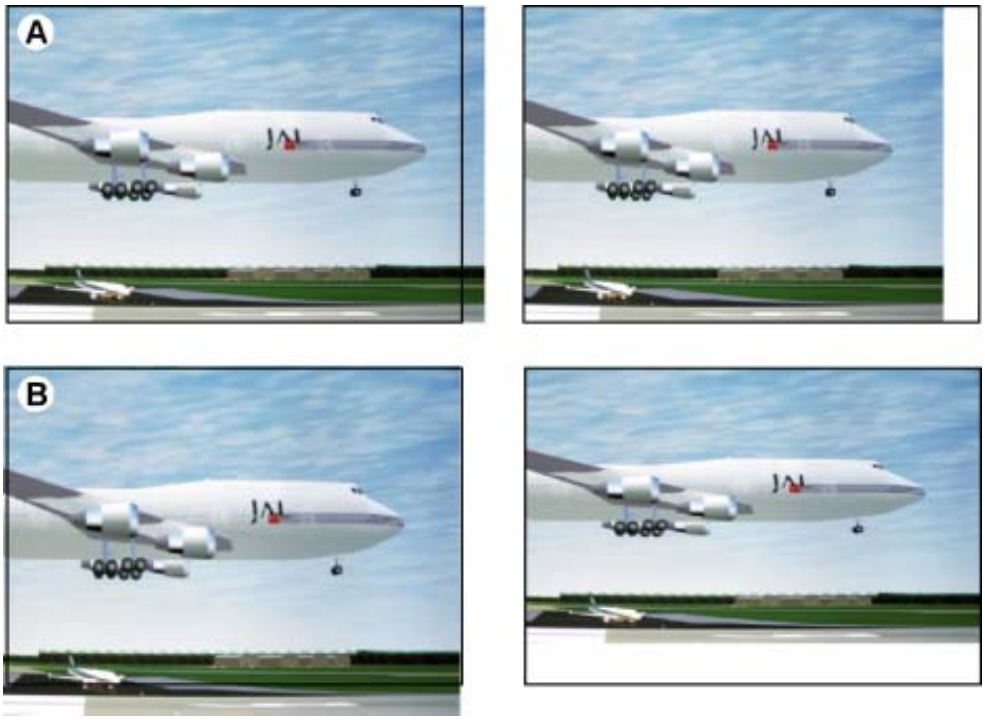


Image 6-9
Size adjustment

A Horizontal size adjustment
B Vertical size adjustment

How to adjust

1. Push the cursor key ↑ or ↓ to highlight *Size*. (menu 6-46)
2. Press **ENTER** to select.
3. Use the ↑ or ↓ keys to adjust the vertical size.
   Use the ← or → keys to adjust the horizontal size.
   Or,
   press **ENTER** to access the digits directly.
4. Press **EXIT** to return.

```
WINDOW ADJUSTMENT

  SELECT SOURCE
     SIZE
   POSITION
   Z-ORDER
  COLOR KEY
 ALPHA BLEND
NO SIGNAL COLOR



Select with ↑ or ↓
   then <ENTER>
 <EXIT> to return
```

Menu 6-46

6.5.4 Window Position

What can be done ?

The active window can be moved horizontally and vertically over the screen until the desired place is reached. The reference is the upper left corner.

Image 6-10

How to position

1. Push the cursor key ↑ or ↓ to highlight *Position*. (menu 6-47)
2. Press **ENTER** to select.
3. Press the ↑ or ↓ key to move the image in a vertical way.
   Press the ← or → key to move the image in a horizontal way.
   Or,
   press **ENTER** to access the digits directly.
4. Press **EXIT** to return.

```
WINDOW ADJUSTMENT

SELECT SOURCE
SIZE
POSITION
Z-ORDER
COLOR KEY
ALPHA BLEND
NO SIGNAL COLOR



Select with ↑ or ↓
then <ENTER>
<EXIT> to return
```

Menu 6-47

6.5.5 Z-order

Z-order

The layer sequence in which windows will be displayed in relation to one another.

What can be done ?

It is possible to adjust the Z-order or layering scheme of the windows in relation to one another. The Z-value of the active window can be changed so that the display order is changed.

Image 6-11
Z-order adjustment

How to change the Z-order of a window

1. Push the cursor key ↑ or ↓ to highlight *Z-order*. (menu 6-48)
2. Press **ENTER** to select.

A bar scale will be displayed.

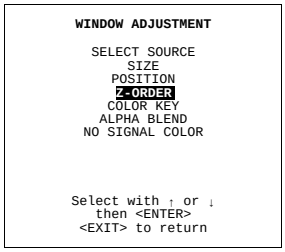
3. Use the ← or → key to move the slider.

   The more the slider is to the left, the lower the z-value.

   The more the slider is to the right, the higher the z-value.

   Windows with a higher z-value is always displayed in front of a window with a lower z-value.

4. Press **EXIT** to return.



Menu 6-48

6.5.6 Color Key

Color key

Sometimes also called chroma key. This is a method of combining two video images. An example of chroma keying in action is the nightly news person standing in front of a weather map. In reality, the person is standing in front of a blue or green background and the camera image is mixed with a computer-generated weather map. This is how it works: a TV camera is pointed at the person and fed along with the image of the weather map into a box. Inside the box, a decision is made. Wherever it sees the blue or green background, it displays the weather map. Otherwise, it shows the person. So, whenever the person moves around, the box figures out where he is, and displays the appropriate image.

6.5.6.1 Color Key activation

Example images of color keying

Take e.g. two image. One taken on a full color background and the other a normal image. The full color background will be replaced by the second image via the principle of color keying.

Image 6-12
Zebra on a single color

Image 6-13
Full color image

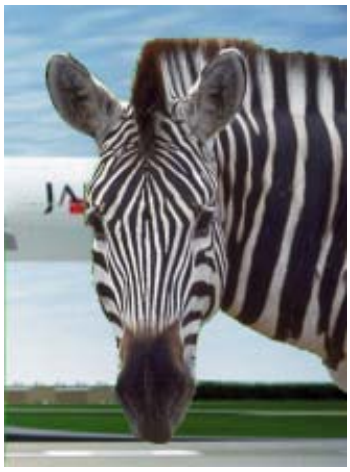


Image 6-14
Result image after color keying

Activating Color key

1. Push the cursor key ↑ or ↓ to highlight *Color Key*. (menu 6-49)

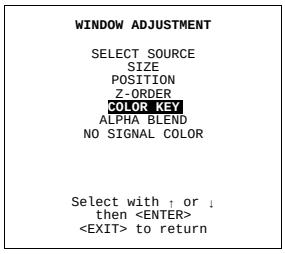
   The Color key menu will be displayed. (menu 6-50)

2. Select *Status*.

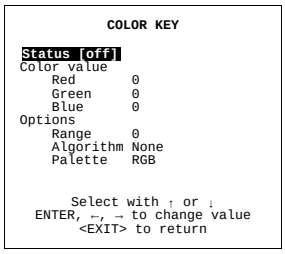
3. Press **ENTER** to toggle between *ON* and *OFF*.

   ON Color key function is active with the settings in the menu

   OFF Color key function is disabled.



Menu 6-49



Menu 6-50

6.5.6.2 Set up of the color for color key

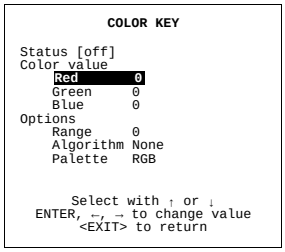
What can be done ?

The color which has to be substituted can be entered by its RGB values (between 0 and 255)

Color key settings, color value

1. Select *Red*. (menu 6-51)
2. Press **ENTER** to activate.
3. Press the ←or → to change the value.

   The value can vary between 0 and 255.
4. Select *Green* and set up the value.
5. Select *Blue* and set up the value.



Menu 6-51

6.5.6.3 Color key range

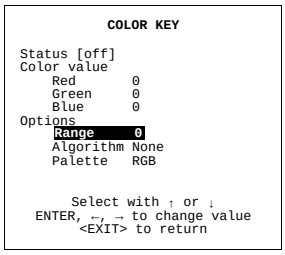
What can be defined ?

The allowed deviation from the set up color can be entered. A range of color is at that moment defined. So, all colors equal to the set up color, + or - the deviation value will be substituted.

Color key range set up

1. Select *Range*. (menu 6-52)
2. Press **ENTER** to select.

3. Use the ↑ or ↓ arrow keys to change to the desired value.



Menu 6-52

6.5.6.4 Color key algorithm

What can be set up ?

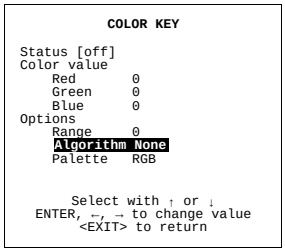
The way the image processor should process the set up *color* and *range*.

Color key algorithm

1. Select *Algorithm*. (menu 6-53)
2. Press **ENTER** to toggle between the possible value.

   The value can be:

higher	all colors higher that the set up color values (range) will be replaced.
lower	all colors lower that the set up color values (range) will be replaced.
equal	all colors equal to the colors set up will be replaced.
inside range	all colors within the range will be replaced.
outside range	all colors outside the range will be replaced.



Menu 6-53

6.5.6.5 Color key palette set up

What can be specified ?

With the palette setting, the color tint can be defined. When on RGB, the full color palette can be used for color keying. When only blue, green or red is selected, only color tints of these colors can be used for color keying.

Color key palette set up

1. Select *Palette*. (menu 6-54)
2. Press **ENTER** to toggle between *RGB*, *Green*, *Red* or *Blue*.

RGB	The complete RGB range can be used for color keying
Green	Only green colors can be used for color keying
Red	Only red colors can be used for color keying

```
            COLOR KEY

Status [off]
Color value
    Red       0
    Green     0
    Blue      0
Options
    Range     0
    Algorithm None
    Palette   RGB


      Select with ↑ or ↓
  ENTER, ←, → to change value
       <EXIT> to return
```

Menu 6-54

6.5.7 Alpha Blending

Alpha Blending

Alpha Blending enables the ability to add transparency to any selected source.

Overview

Alpha blending can be executed on a graduation scale of 0–255. With 255 being transparent or invisible and 0 being solid.

Image 6-15

Image 6-16

Image 6-17

How to realize alpha blending

1. Push the cursor key ↑ or ↓ to highlight *Color Key*. (menu 6-55)
2. Press **ENTER** to select.

   A bar scale will be displayed.
3. Use the ← or → arrow key to change the blending value.

   The higher the value, the more transparent the image.
   Or,
   click in the input box and enter the desired value with the keyboard.

```
WINDOW ADJUSTMENT

  SELECT SOURCE
      SIZE
    POSITION
    Z-ORDER
  COLOR KEY
 ALPHA BLEND
NO SIGNAL COLOR



Select with ↑ or ↓
   then <ENTER>
 <EXIT> to return
```

Menu 6-55

6.5.8 No Signal

What can be done ?

The background color when no signal is projected can be set to black or blue.

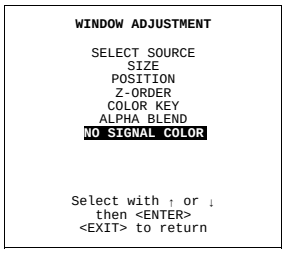
How to set ?

1. Push the cursor key ↑ or ↓ to highlight *No Signal Color*. (menu 6-56)

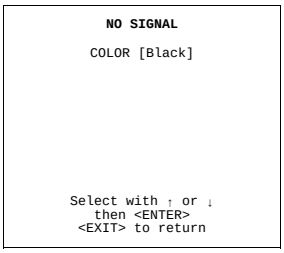
   The *No signal* menu opens. (menu 6-57)
2. Push the cursor key ↑ or ↓ to highlight *Color*.
3. Press **ENTER** to toggle between [black] or [blue].

[Black] when no signal, the canvas will be black.

[Blue] when no signal, the canvas will be blue.



Menu 6-56



Menu 6-57

6.5.9 Exit the Window adjustment menus

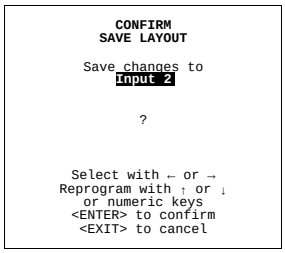
How to exit

1. When on the *Window Adjustment* menu, press **EXIT** to go one level up.

   A confirm Save layout will be displayed. (menu 6-58)

2. Press **ENTER** to confirm.
   Or,
   press **EXIT** to cancel.

   When canceling, the previous layout will be reloaded again.



Menu 6-58

6.6 Layout Adjustment

Overview

- Start up
- Load Layout
- Rename Layout
- Delete layout
- Add a window to a layout
- Remove a window in a layout
- Edit window
- Keystone adjustment
- Blanking adjustment
- Input locking

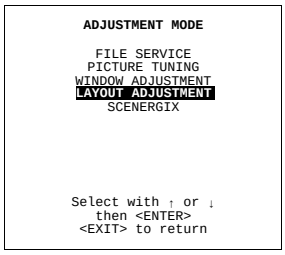
6.6.1 Start up

Start up

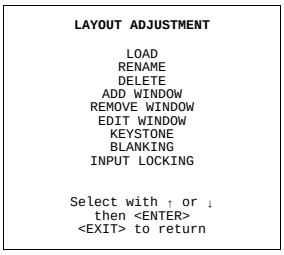
The screen layouts and window manipulations can be managed with the Layout adjustment. To start up the Layout Adjustment :

1. Push the cursor key ↑ or ↓ to highlight *Layout adjustment*. (menu 6-59)
2. Press **ENTER** to select.

The layout adjustment menu will be displayed. (menu 6-60)



Menu 6-59



Menu 6-60

6.6.2 Load Layout

What can be done?

A predefined window layout can be loaded.

The following layouts are available and are read only :

- input1
- input12
- input123
- input1234

How to load

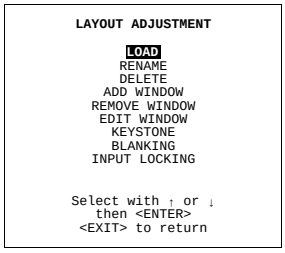
1. Push the cursor key ↑ or ↓ to highlight *Load*. (menu 6-61)

   The Load menu will be displayed. (menu 6-62)

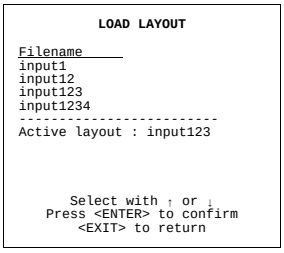
2. Push the cursor key ↑ or ↓ to select the desired layout file.
3. Press **ENTER** to confirm.

   The selected layout will be loaded.

   The active layout is indicated just below the file list.



Menu 6-61



Menu 6-62

6.6.3 Rename Layout

What can be done?

An existing layout (layout file) can be renamed.

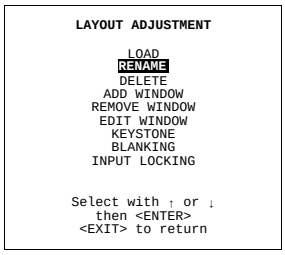
How to rename

1. Push the cursor key ↑ or ↓ to highlight *Rename*. (menu 6-63)

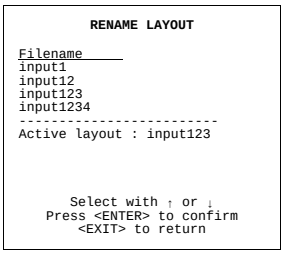
   The Rename selection menu will be displayed. (menu 6-64)

2. Push the cursor key ↑ or ↓ to select the desired layout file you want to rename.
3. Press **ENTER** to confirm.

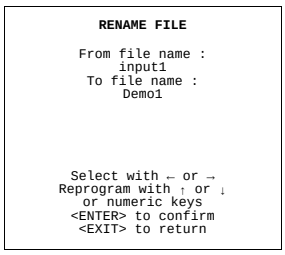
The rename window will be displayed. (menu 6-65)



Menu 6-63



Menu 6-64



Menu 6-65

Changing the characters

1. Push the cursor keys ← or → to select the desired character.
   Or,
   Change that character by pushing the cursor keys ↑ or ↓. Numeric characters can be entered directly with numeric keys on the RCU.
   Or,
   Press **ENTER** to confirm.

   The renamed file is entered in the list of files.
2. Press **EXIT** to return to the Rename menu selection.

6.6.4 Delete layout

What can be done?

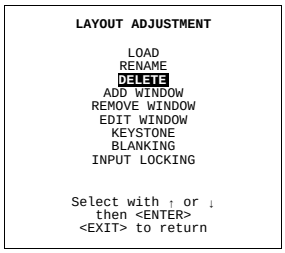
A window layout saved in a file can be deleted from the file system.

How to delete

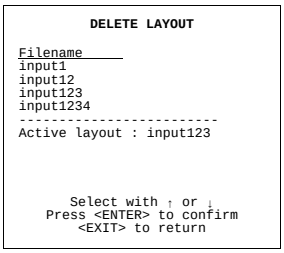
1. Push the cursor key ↑ or ↓ to highlight *Delete*. (menu 6-66)

   The Delete selection menu will be displayed. (menu 6-67)
2. Push the cursor key ↑ or ↓ to select the layout file you want to delete.
3. Press **ENTER** to confirm.

   A delete confirmation message will be displayed.
4. Press **ENTER** to confirm.
   Press **EXIT** to cancel the delete action.



Menu 6-66



Menu 6-67

6.6.5 Add a window to a layout

What can be done ?

A window can be added to the actual layout as long as the maximum number of windows (4) is not yet reached.

How to add a window

1. Push the cursor key ↑ or ↓ to highlight *Add Window*. (menu 6-68)
2. Press **ENTER** to select.

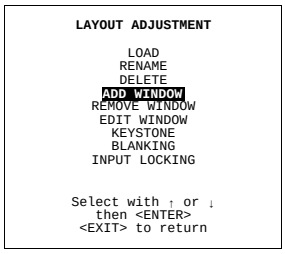
   A dialog box appears on the screen. (menu 6-69)
3. Enter the source number of the source you want to add with the digit keys of the RCU.

The new window will be added in the same position as it was previously removed. To change the position, go to *Edit window* or select *Window adjustment*, *Position*.

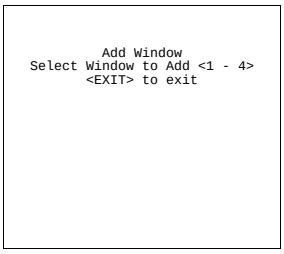
4. Press **EXIT** to return to the *Layout adjustment* menu.

   A *Confirm Save layout* menu will be displayed. When the active layout is read only, new name for layout will be proposed. (menu 6-70)

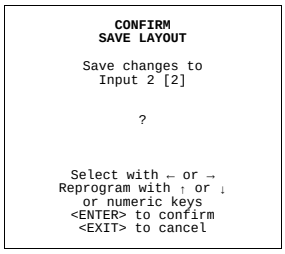
5. Press **ENTER** to confirm.



Menu 6-68



Menu 6-69



Menu 6-70

6.6.6 Remove a window in a layout

What can be done ?

One typical window in a layout can be removed out of this layout.

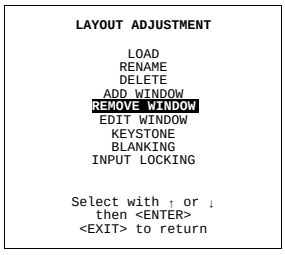
How to remove a window

1. Push the cursor key ↑ or ↓ to highlight *Remove Window*. (menu 6-71)
2. Press **ENTER** to select.

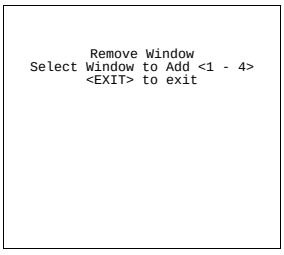
   The *Remove window* dialog box will be displayed. (menu 6-72)

3. Enter the source number of the source you want to remove from the layout.
4. Press **ENTER** to confirm.
5. Press **EXIT** to return to the *Layout adjustment* menu.

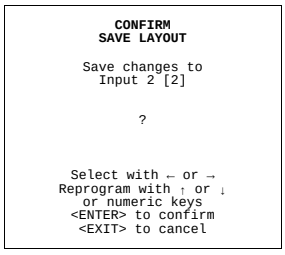
   A *Confirm Save layout* menu will be displayed. When the active layout is read only, new name for layout will be proposed. (menu 6-73)



Menu 6-71



Menu 6-72



Menu 6-73

6.6.7 Edit window

What can be done ?

The selected window can be adjusted in size, position, z-order, etc. .

How to edit a window

1. Push the cursor key ↑ or ↓ to highlight *Edit Window*. (menu 6-74)
2. Press **ENTER** to select.

The *Edit window* menu is redirected to the *Window adjustment* menu.

```
LAYOUT ADJUSTMENT

      LOAD
    RENAME
    DELETE
  ADD WINDOW
REMOVE WINDOW
 EDIT WINDOW
  KEYSTONE
  BLANKING
INPUT LOCKING


Select with ↑ or ↓
   then <ENTER>
 <EXIT> to return
```

Menu 6-74

6.6.8 Keystone adjustment

What can be done ?

The keystone adjustment is used to align the image if the projector is mounted at a non standard projection angle. The keystone adjustment influences the complete projected image (even when the image is composed by different windows).

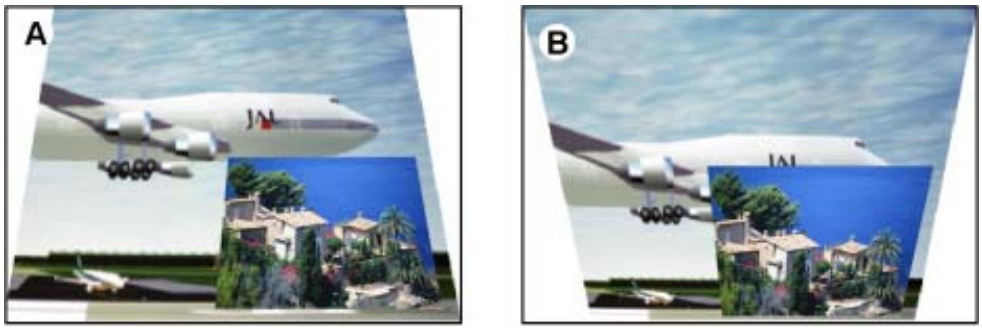


Image 6-18
Keystone adjustment

How to adjust the keystone

1. Push the cursor key ↑ or ↓ to highlight *Keystone*. (menu 6-75)
2. Press **ENTER** to select.
3. Push the cursor key ← or → to adjust the keystone of the image.
   When the upper part of the image is wider than the lower part of the image, push the cursor key ←. The value indication below the bar scale will be negative.
   When the upper part of the image is smaller than the lower part of the image, push the cursor key →. The value indication below the bar scale will be positive.

```
LAYOUT ADJUSTMENT

      LOAD
    RENAME
    DELETE
  ADD WINDOW
REMOVE WINDOW
  EDIT WINDOW
  KEYSTONE
  BLANKING
INPUT LOCKING


Select with ↑ or ↓
   then <ENTER>
 <EXIT> to return
```

Menu 6-75

6.6.9 Blanking adjustment

What can be done ?

Blanking adjustments affect only the edges of the complete projected image and are used to frame the projected image on to the screen and hide or blank 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

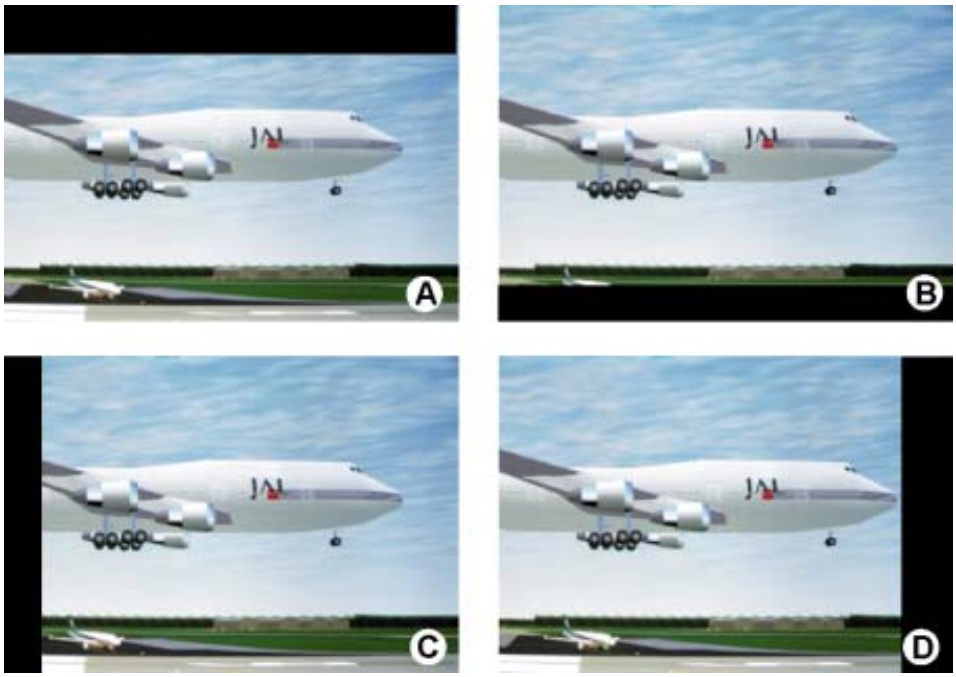


Image 6-19

Adjusting the blanking

1. Push the cursor key ↑ or ↓ to highlight *Blanking*. (menu 6-76)
2. Press **ENTER** to display the blanking menu. (menu 6-77)
3. Push the cursor key ↑ or ↓ to highlight the desired blanking adjustment.
4. Press **ENTER** to start up the chosen blanking.
5. Use the cursor keys to adjust the blanking.

```
LAYOUT ADJUSTMENT

      LOAD
    RENAME
    DELETE
 ADD WINDOW
REMOVE WINDOW
 EDIT WINDOW
   KEYSTONE
   BLANKING
INPUT LOCKING


Select with ↑ or ↓
   then <ENTER>
 <EXIT> to return
```

Menu 6-76

```
BLANKING

    TOP
 BOTTOM
   LEFT
  RIGHT




Select with ↑ or ↓
   then <ENTER>
 <EXIT> to return
```

Menu 6-77

6.6.10 Input locking

What can be done ?

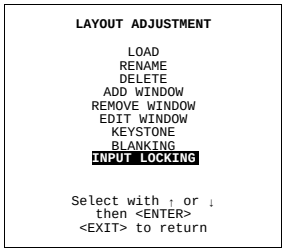
The output signal can be locked on an internal generated sync signal or on the sync signal of one of the input sources. Locking the output signal on an input signal can be required if motion artifacts occurs in that window or if frame delay for that input has to be set to zero.

How to setup ?

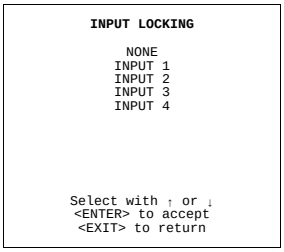
1. Push the cursor key ↑ or ↓ to highlight *Input Locking*. (menu 6-78)

   The *Input locking* menu will be displayed. (menu 6-79)
2. Push the cursor key ↑ or ↓ to highlight the desired locking mode.

None	Output is locked on an internal sync
Input 1	Output is locked on source 1
Input 2	Output is locked on source 2
Input 3	Output is locked on source 3
Input 4	Output is locked on source 4



Menu 6-78



Menu 6-79

6.7 Scenergix

Overview

- Introduction
- Preparations
- ScenergiX
- ScenergiX overlap zone (horizontal scenergix)
- ScenergiX overlap zone (vertical scenergix)
- ScenergiX size adjustment
- Adjusting the black level of the images

6.7.1 Introduction

Why ScenergiX ?

When working in a multichannel setup the XLM HD30 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.

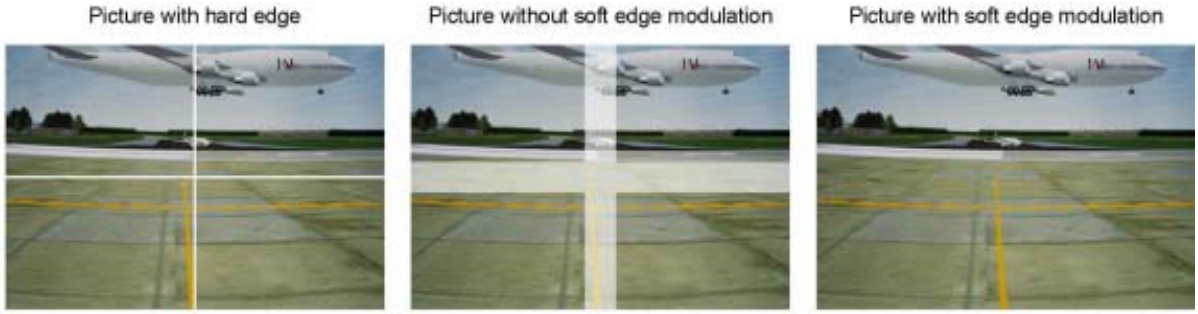


Image 6-20
Why Soft Edge?

What is the Basic Principal of ScenergiX ?

The principle of edge blending is archived 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.

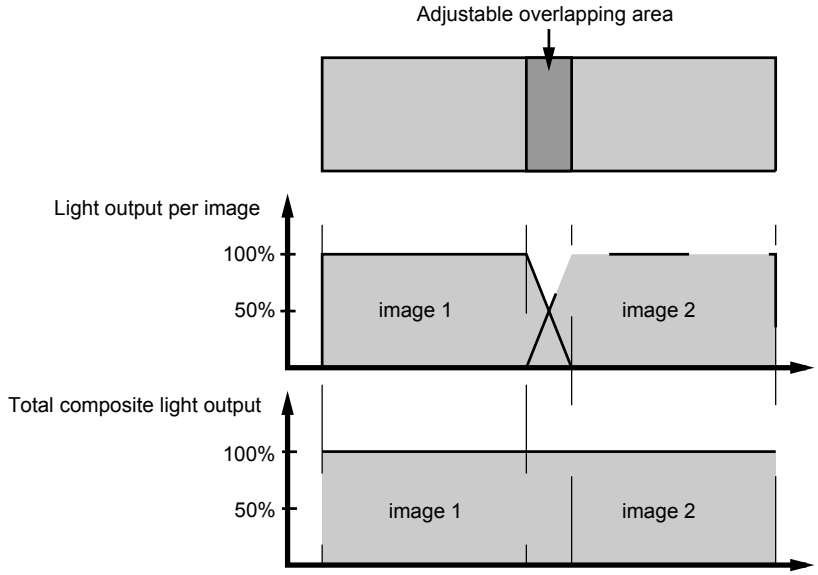


Image 6-21
ScenergiX Basic Principle

6.7.2 Preparations

ScenergiX Preparations

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

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

6.7.3 ScenergiX

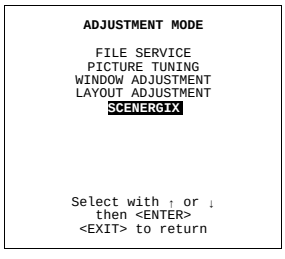
How to activate ?

1. Push the cursor key ↑ or ↓ to highlight *Scenergix.* (menu 6-80)
2. Press **ENTER** to select.

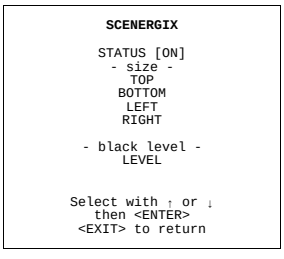
   The *ScenergiX* menu will be displayed. (menu 6-81)
3. Push the cursor key ↑ or ↓ to highlight *Status.*
4. Press **ENTER** to toggle between *ON* and *OFF*.

   ON ScenergiX is active

   OFF ScenergiX is not active



Menu 6-80



Menu 6-81

6.7.4 ScenergiX overlap zone (horizontal scenergix)

Definitions

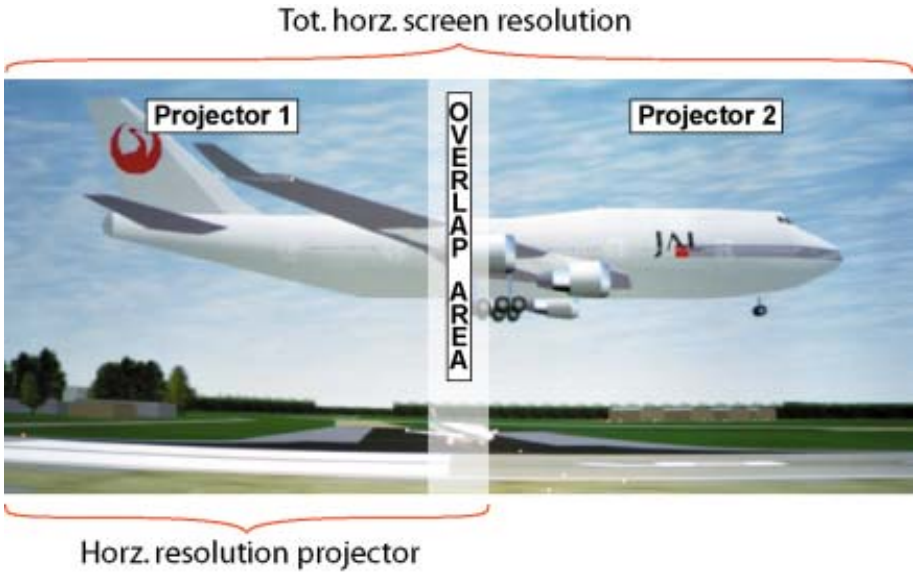


Image 6-22
Scenergix set up

Overlap : number of pixels that overlap

Horizontal resolution of 1 projector : 1024 for Graphics versions, 1280 for Reality versions, 1400 for SXGA projectors.

Total horizontal screen resolution : [(horizontal resolution of 1 projector) x 2] minus overlap.

Horizontal Resolution source : number of active pixels of the source.

Adjustment of Active pixels (Pact) of the first projector

1. Go to *File Service –> Edit* menu of first projector.
2. Enter value for horizontal active (= Pact) as follows :
   Pact = [(Horz. resolution of 1 projector)/(Total horz. screen resolution)] x (horz. resolution source)
3. Horizontal start (= Pstart) remains the same.

Adjustment of Active pixels (Pact) of second projector

1. Go to *File Service –> Edit* menu of second projector.
2. Enter value for horizontal active (= Pact) as follows :
   Pact = [(Horz. resolution of 1 projector)/(Total horz. screen resolution)] x (horz. resolution source)
3. Horizontal start (= Pstart) = original start + [(Horz. resolution source) minus (newly calculated Pact)]

Example

Horizontal resolution source : 1600 pixels

horizontal resolution projector 1 & 2 : 1024 pixels

Overlap : 100 pixels

Total horizontal screen size in pixels : 1948 pixels

Pact projector 1 = [(1024 / 1948)] x 1600 = 841 pixels

Pact projector 2 = [(1024 / 1948)] x 1600 = 841 pixels

Pstart projector 2 = Pstart projector 1 + (1600 – 841)

6.7.5 ScenergiX overlap zone (vertical scenergix)

Definitions

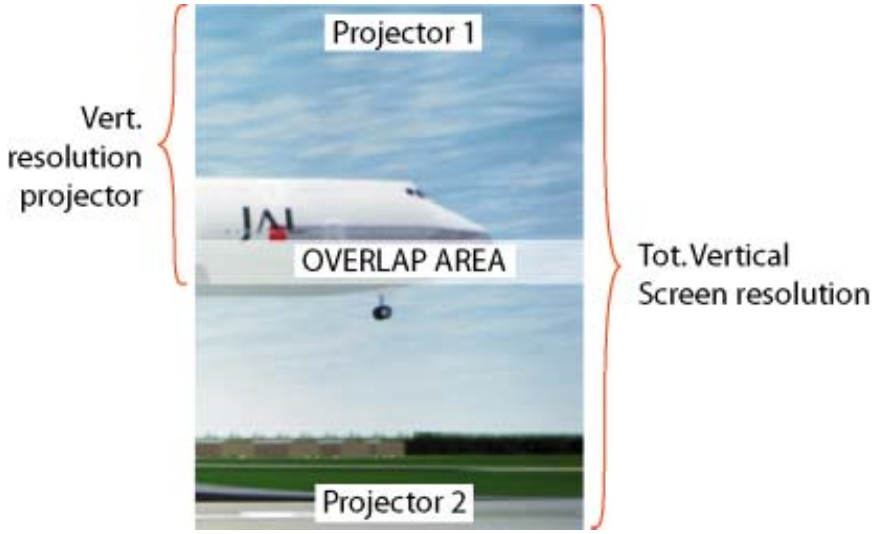


Image 6-23
Scenergix overlap zone vertical

Overlap : number of pixels that overlap

Vertical resolution of 1 projector : 768 for Graphics versions, 1024 for Reality versions, 1050 for SXGA projectors.

Total vertical screen resolution : [(Vertical resolution of 1 projector) x 2] minus (overlap)

Vertical Resolution source : number of active lines of the source

Adjustment of Active lines (Lact) of the first projector

1. Go to *File Service –> Edit* menu of first projector.
2. Enter value for vertical act (= Lact) as follows :
   Lact = [(vert.. resolution of 1 projector)/(Total Vert. screen resolution)] x (Verti. resolution source)
3. Vertical start (= Lstart) remains the same.

Adjustment of Active lines (Lact) of second projector

1. Go to *File Service –> Edit* menu of second projector.
2. Enter value for vertical act (= Lact) as follows :
   Lact = [(Vert.. resolution of 1 projector)/(Total vert. screen resolution)] x (vert. resolution source)
3. Vertical start (= Lstart) = original start + [(Vert. resolution source) minus (newly calculated Lact)]

Example

Vertical resolution source : 1200 lines

Vertical resolution projector 1 & 2: 768 lines

Overlap : 50 lines

Total vertical screen size : 1486 lines

Lact projector 1 = (768 / 1486) x 1200 = 620 lines

Lact projector 2 = (768 / 1486/) x 1200 = 620 lines

Lstart projector 2 = Lstart projector 1 + (1200 – 620)

6.7.6 ScenergiX size adjustment

What can be done with the ScenergiX size menu?

Within this menu the width of the blending zone is set up.

How to adjust the size?

Only accessible when the status is in the ON position.

1. Push the cursor key ↑ or ↓ to highlight one of the four size adjustments, Top, Bottom, Left or Right. (menu 6-82)
2. Press **ENTER** to select.

A pattern with the different areas will be displayed. (image 6-24)

3. Use the cursor keys to move the border of the overlap area to the desired position (value between 0 and 255). Set first the width of the first projector and repeat for the second one. (image 6-25, image 6-26)

```
SCENERGIX

STATUS [ON]
 - size -
   TOP
 BOTTOM
  LEFT
 RIGHT

- black level -
   LEVEL


Select with ↑ or ↓
   then <ENTER>
<EXIT> to return
```

Menu 6-82

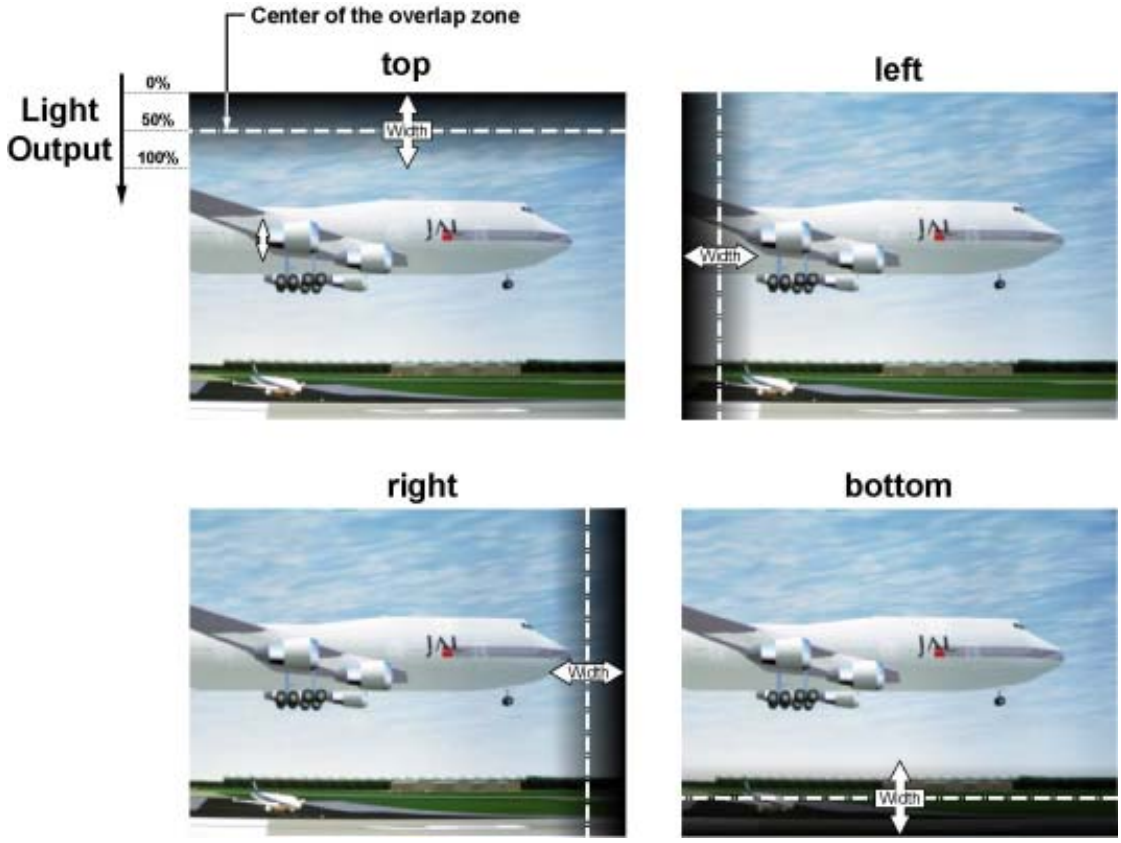


Image 6-24
Width selections

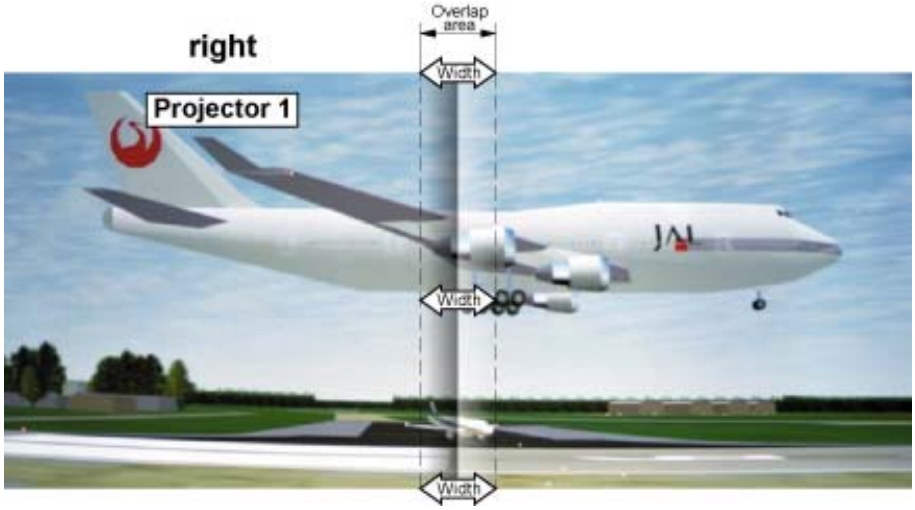


Image 6-25
Width set up for projector 1

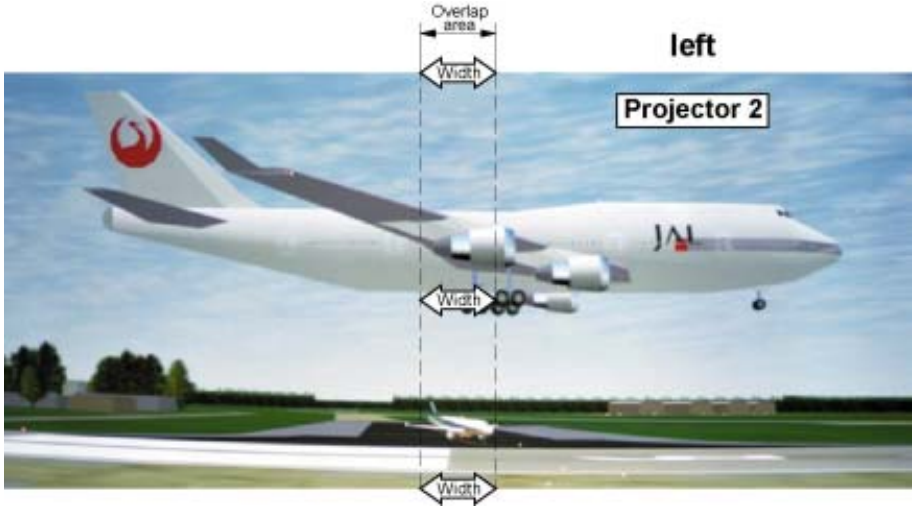


Image 6-26
Width set up for projector 2

6.7.7 Adjusting the black level of the images

Why

For dark images, the overlap zone will be brighter then the rest of the images. Therefore we can rise the black level of the remaining image (excluding the overlap zone).

How to adjust?

1. Push the cursor key ↑ or ↓ to highlight *Level*. (menu 6-83)
2. Press **ENTER** to activate.
3. Adjust the black level of area A until the black level of area A, B and C are equal. (image 6-27)

```
SCENERGIX

STATUS [ON]
  - size -
    TOP
  BOTTOM
   LEFT
  RIGHT

- black level -
   LEVEL


Select with ↑ or ↓
   then <ENTER>
 <EXIT> to return
```

Menu 6-83

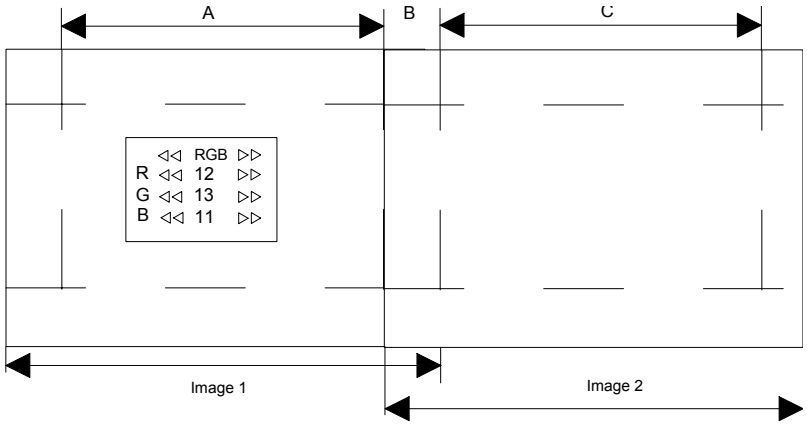


Image 6-27
Black level adjustment

7. INSTALLATION

Overview

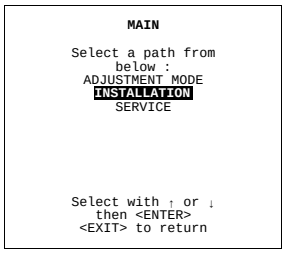
- Start up of the installation mode
- Input slots
- Configuration
- Lens
- Tilt adjustment
- Internal Patterns
- Buttons
- Macros

7.1 Start up of the installation mode

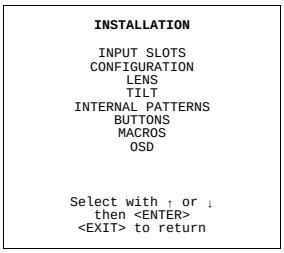
Start up

1. Push the cursor key ↑ or ↓ to highlight *Installation*. (menu 7-1)
2. Press **ENTER** to select.

   The *Installation* mode will be displayed. (menu 7-2)



Menu 7-1



Menu 7-2

7.2 Input slots

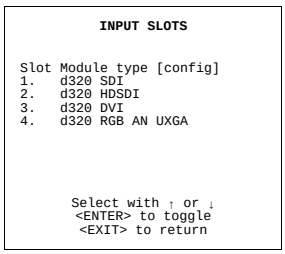
What can be done ?

The input configuration of the variable inputs is shown in the *Input slots* menu.

To view or the change the input configuration.

1. Push the cursor key ↑ or ↓ to highlight *Input Slots*.
2. Press **ENTER** to select.

   The input slots menu will be displayed. (menu 7-3)



Menu 7-3

Possible results

Source	Indication
Video	d320 cvbs/S-vid [cvbs]
S-Video	d320 cvbs/S-vid [s-vid]
RGB analog	d320 an uxga d320 yuv/rgsb [rgsb]
Component Video	d320 yuv/rgsb [yuv]
DVI	d320 dvi
SDI	d320 sdi
HD-SDI	d320 hdsdi

7.3 Configuration

What can be done?

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

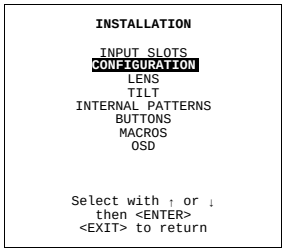
The following installation configurations are possible:

- front/table
- front/ceiling
- rear/table
- rear/table

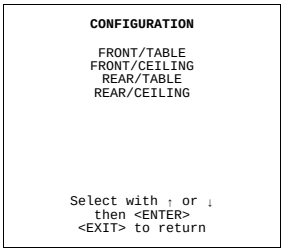
Set up the Correct Configuration

1. Push the cursor key ↑ or ↓ to highlight *Configuration*. (menu 7-4)
2. Press **ENTER** to select.

   The configuration menu will be displayed. (menu 7-5)



Menu 7-4



Menu 7-5

For more information, see Installation Guidelines .

7.4 Lens

7.4.1 Lens adjustment

What can be done ?

All lens adjustments are motorized and can be adjusted with the RCU.

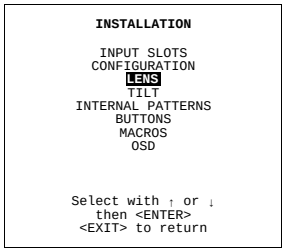
The following items can be adjusted:

- zoom/focus
- shift

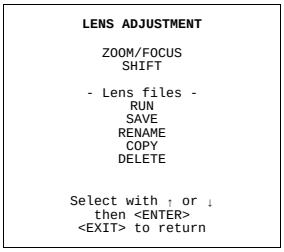
How to start up.

1. Push the cursor key ↑ or ↓ to highlight *Lens*. (menu 7-6)
2. Press **ENTER** to select.

   The lens menu will be displayed. (menu 7-7)



Menu 7-6

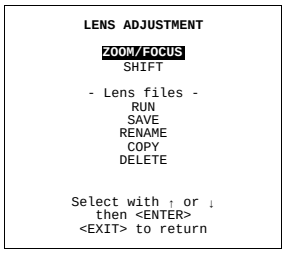


Menu 7-7

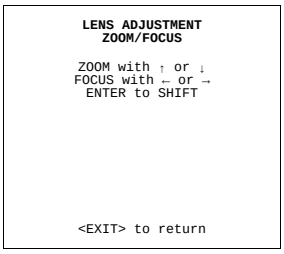
How to Zoom/Focus ?

1. Push the cursor key ↑ or ↓ to select Zoom/Focus. (menu 7-8)
2. Press **ENTER** to select.

   The lens adjustment pattern will be displayed with the adjustment instructions. (menu 7-9)
3. Push the cursor key ↑ or ↓ to zoom and ← or → to focus the image.
4. When finished, press **EXIT** to return to the lens adjustment menu or press **ENTER** to go to the shift function.



Menu 7-8

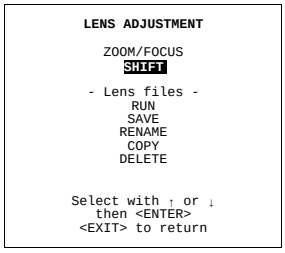


Menu 7-9

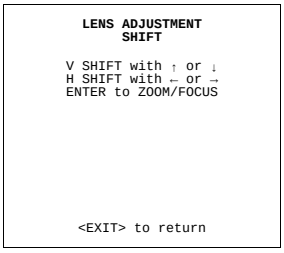
How to shift the image?

1. When on the Zoom/Focus menu, press **ENTER** to switch to the shift menu or
2. When on the Lens Adjustment menu, push the cursor key ↑ or ↓ to highlight *Shift* and press **ENTER** to display the shift menu. (menu 7-10)
3. Press **ENTER** to select.

   The lens adjustment pattern will be displayed with the adjustment instructions. (menu 7-11)
4. Push the cursor key ↑ or ↓ to shift the image up or down and ← or → to shift the image left or right.
5. When finished, press **EXIT** to go to the lens adjustment menu or press **ENTER** to go to the zoom/focus function.



Menu 7-10



Menu 7-11

7.4.2 Lens files

What is possible ?

Lens settings can be stored in files. These settings can be recalled and will be loaded. This recall can be added as item in a macro.

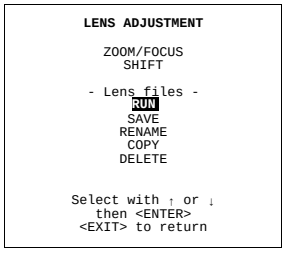
7.4.2.1 Run a lens file

How to run a lens file ?

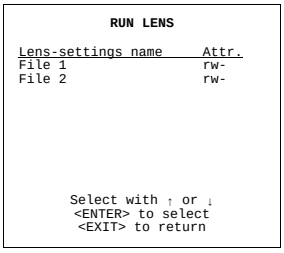
1. Push the cursor key ↑ or ↓ to highlight *Run*. (menu 7-12)

   The *Run lens* menu will be displayed. (menu 7-13)
2. Push the cursor key ↑ or ↓ to highlight the desired file.
3. Press **ENTER** to select.

   The selected file will be loaded.



Menu 7-12



Menu 7-13

7.4.2.2 Save lens settings

What can be done ?

A typical lens setting (zoom/focus and shift) can be stored in a file for future recalls.

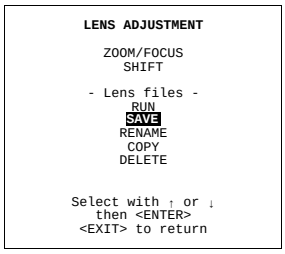
How to save ?

1. Push the cursor key ↑ or ↓ to highlight *Save*. (menu 7-14)
2. Press **ENTER** to start the save action.

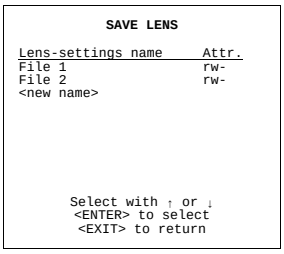
   The save menu will be displayed. (menu 7-15)
3. Push the cursor key ↑ or ↓ to highlight *<new name>*.
4. Press **ENTER** to select.

   The first digit will be highlighted.
5. Use the ↑ or ↓ key to change the digit. Use the ← or → key to go the next digit.
6. Press **ENTER** to accept the new name.

   The lens settings will be saved with the new name.



Menu 7-14



Menu 7-15

7.4.2.3 Rename lens file

What can be done ?

An existing lens file can be renamed. When this file is used in a macro, the macro must be changed too.

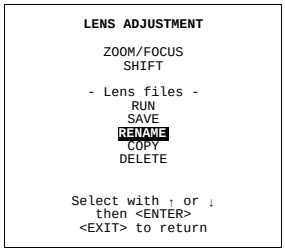
How to rename ?

1. Push the cursor key ↑ or ↓ to highlight *Rename*. (menu 7-16)
2. Press **ENTER** to select.

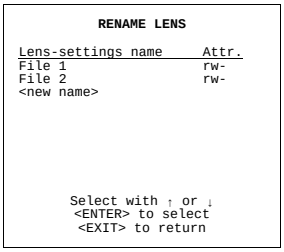
   The file selection menu will be displayed. (menu 7-17)
3. Push the cursor key ↑ or ↓ to highlight the file which must be renamed.
4. Press **ENTER** to select.

   The rename menu will be displayed. (menu 7-18)
5. The first character will be highlighted.
   Reprogram with ↑, ↓ or numeric keys. Select another character with ← or →.
6. Press **ENTER** to confirm the changes.

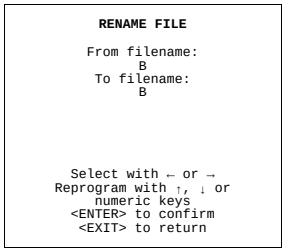
   The file will be renamed.



Menu 7-16



Menu 7-17



Menu 7-18

7.4.2.4 Copy lens file

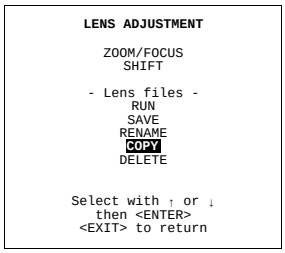
How to copy ?

1. Push the cursor key ↑ or ↓ to highlight *Copy*. (menu 7-19)

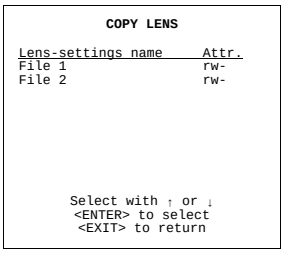
   The file selection menu will be displayed. (menu 7-20)
2. Push the cursor key ↑ or ↓ to highlight the file which must be copied.

   The Copy lens file menu will be displayed. (menu 7-21)
3. The first character of the *To filename* will be highlighted.
   Reprogram with ↑, ↓ or numeric keys. Select another character with ← or →
4. Press **ENTER** to confirm the copy action.

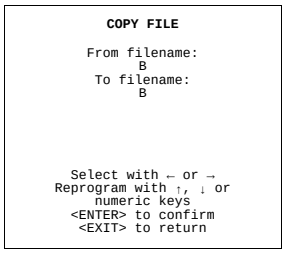
   The initial file will be copied to a new file.



Menu 7-19



Menu 7-20



Menu 7-21

7.4.2.5 Delete lens file

How to delete ?

1. Push the cursor key ↑ or ↓ to highlight *Delete.* (menu 7-22)

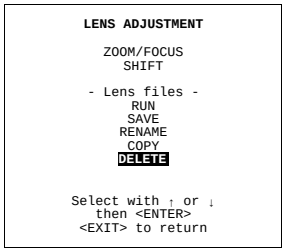
2. Press **ENTER** to select.

   The file selection menu will be displayed. (menu 7-23)

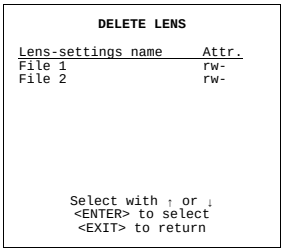
3. Push the cursor key ↑ or ↓ to highlight the file which must be deleted.
4. Press **ENTER** to select.

   The delete confirm menu will be displayed. (menu 7-24)

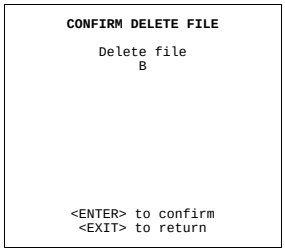
5. Press **ENTER** to confirm the delete action.



Menu 7-22



Menu 7-23



Menu 7-24

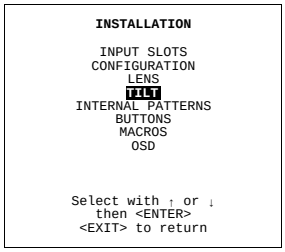
7.5 Tilt adjustment

How to tilt the image ?

1. Push the cursor key ↑ or ↓ to highlight *Tilt.* (menu 7-25)

   The tilt pattern will be displayed. (image 7-1)

2. Push the cursor key ↑ or ↓ to tilt the image.
3. Press **EXIT** to return to the installation menu.



Menu 7-25

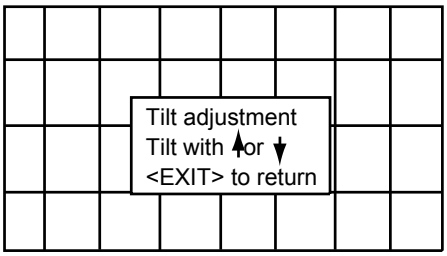


Image 7-1

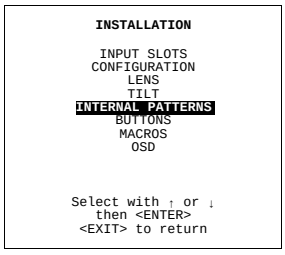
7.6 Internal Patterns

How to select a pattern

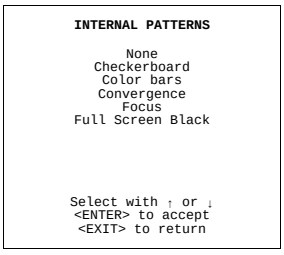
1. Push the cursor key ↑ or ↓ to highlight *Internal Patterns*. (menu 7-26)
2. Press **ENTER** to select.

   The *Internal Patterns* menu will be displayed. (menu 7-27)

3. Push the cursor key ↑ or ↓ to highlight the desired pattern. When on the last item in the list, just push ↓ key to scroll to more hidden items in the list.
4. Press **ENTER** to display the selected pattern.
   The following patterns are available:
   - None
   - Alternating checker board
   - Checker board
   - Color bars
   - Convergence
   - Focus
   - Focus Blue
   - Focus Red
   - Focus Green
   - Full Screen Black
   - Full Screen Blue
   - Full Screen Green
   - Full Screen Red
   - Full Screen White
   - Hatch
   - Hatch Blue on Green
   - Hatch Blue on Red
   - Hatch Red on Green
   - Outline
   - Purity



Menu 7-26



Menu 7-27

7.7 Buttons

What is possible ?

Macros can be associated to buttons of the remote control.

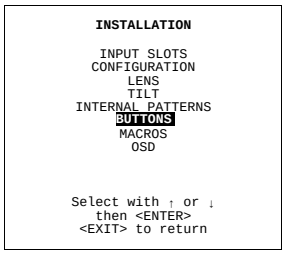
How to associate ?

1. Push the cursor key ↑ or ↓ to highlight *Buttons*. (menu 7-28)
2. Press **ENTER** to select.

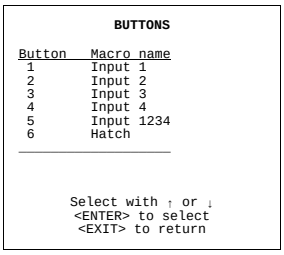
   The buttons menu will be displayed. (menu 7-29)
3. Push the cursor key ↑ or ↓ to select the desired button.
4. Press **ENTER** to select.

   The *Change button* menu will be displayed. (menu 7-30)
5. Push the cursor key ↑ or ↓ to select the desired macro.
6. Press **ENTER** to select.

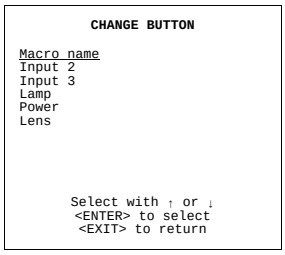
The selected macro will be associated with the previous selected button.



Menu 7-28



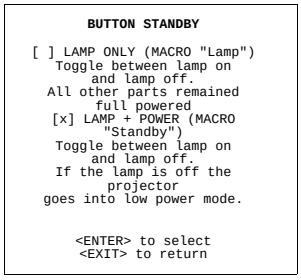
Menu 7-29



Menu 7-30

When standby button is selected

When the standby symbol is selected, the standby button menu appears.



Menu 7-31

The standby button can act now as:

- lamp on/off button when the first option is checked.
- lamp + power on/off when the second option is checked.

7.8 Macros

What is possible ?

A macro can be created, renamed, copied and started. The created macro file can then be associated with a button on the remote control.

Overview

- Run a macro
- Edit a Macro
- Rename a macro file
- Copy a macro file
- Delete a macro file
- Create a macro file

7.8.1 Run a macro

What can be done ?

A macro can be started with the Run function.

How to run ?

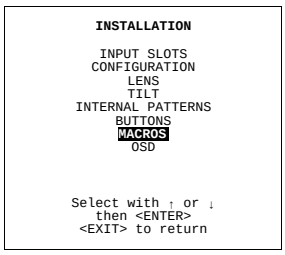
1. Push the cursor key ↑ or ↓ to highlight *Macros*. (menu 7-32)
2. Press **ENTER** to select.

   The Macro menu will be displayed. (menu 7-33)
3. Push the cursor key ↑ or ↓ to highlight *Run*.
4. Press **ENTER** to select.

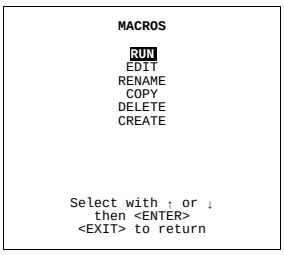
The Run macro menu will be displayed. (menu 7-34)

5. Push the cursor key ↑ or ↓ to highlight the desired macro file.
6. Press **ENTER** to select.

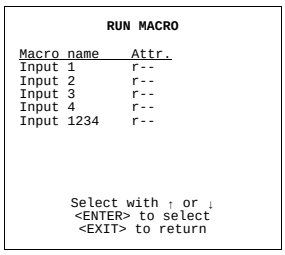
   The selected macro file will be executed.



Menu 7-32



Menu 7-33



Menu 7-34

7.8.2 Edit a Macro

What can be done ?

A macro file with read-write attributes can be edited. New lines can be added or existing lines can be changed or deleted.

How to edit a macro?

1. Push the cursor key ↑ or ↓ to highlight *Macros*. (menu 7-35)
2. Press **ENTER** to select.

   The Macro menu will be displayed. (menu 7-36)
3. Push the cursor key ↑ or ↓ to highlight *Edit*.
4. Press **ENTER** to select.

   The Edit macro menu opens. (menu 7-37)
5. Push the cursor key ↑ or ↓ to highlight the desired macro file.

   Only macro files with read write attributes can be changed.

   It is possible to select a macro file with only read attributes. When **ENTER** is pressed, the content of the macro file will be displayed. When trying to change this file, an error message will be displayed.
6. Press **ENTER** to select the selected macro file.

   The macro content overview menu opens. (menu 7-38)
7. Push the cursor key ↑ or ↓ to highlight an existing macro function or a free line.

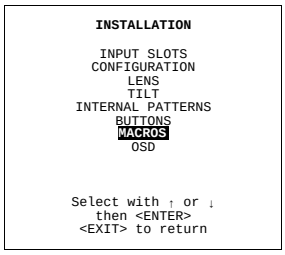
   When a existing macro function is selected, this function will be overwritten by the new selected function.
8. Press **ENTER** to change the content of the macro.

   The *Macro function* menu opens. (menu 7-39)
9. Push the cursor key ↑ or ↓ to highlight the desired macro function.
   Note: *Only 2 macro functions are available.*

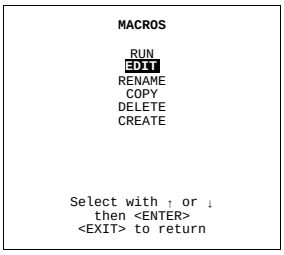
   When in the Edit macro menu an existing macro step is, and in the macro function menu, the dash is selected the selected macro function will be erased.
10. Press **ENTER** to select.

    The typical *Macro value* menu opens (the macro value menu differs for layout and lens). (menu 7-40)
11. Push the cursor key ↑ or ↓ to highlight the desired macro value.
12. Press **ENTER** to select.

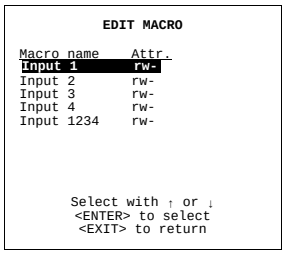
The selected macro value will be associated with the previous selected macro function. E.g. layout = Input 1.



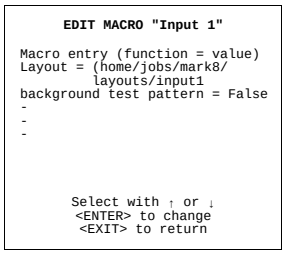
Menu 7-35



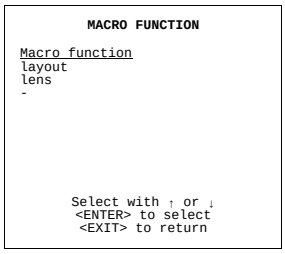
Menu 7-36



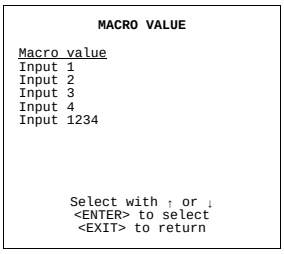
Menu 7-37



Menu 7-38



Menu 7-39



Menu 7-40

7.8.3 Rename a macro file

Only files with a read write attribute can be renamed.

How to rename a macro file ?

1. Push the cursor key ↑ or ↓ to highlight *Macros*. (menu 7-41)
2. Press **ENTER** to select.

   The Macro menu will be displayed. (menu 7-42)
3. Push the cursor key ↑ or ↓ to highlight *Rename*.
4. Press **ENTER** to select.

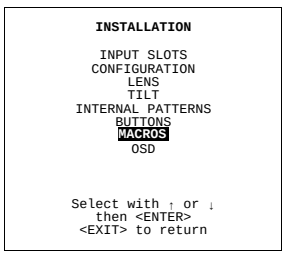
   The *Rename macro* menu opens. (menu 7-43)
5. Push the cursor key ↑ or ↓ to highlight the desired macro.
6. Press **ENTER** to select.

   The macro rename menu opens. (menu 7-44)

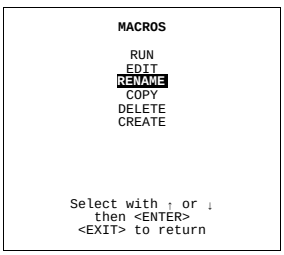
   The first character of the file name in the *To file name* will be highlighted.

   When trying to rename a read only file, an error menu will be displayed. The same error menu will be displayed when trying to rename to an existing file name.
7. Select with ← or → the desired character. Reprogram that character with ↑, ↓ or the numeric keys.
8. Repeat step 7 for the other characters.
9. Press **ENTER** to confirm the rename.

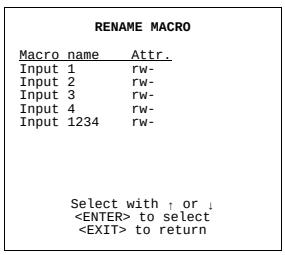
   The macro will be renamed to the new name.



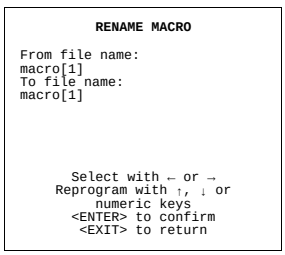
Menu 7-41



Menu 7-42



Menu 7-43



Menu 7-44

7.8.4 Copy a macro file

How to copy ?

1. Push the cursor key ↑ or ↓ to highlight *Macros*. (menu 7-45)
2. Press **ENTER** to select.

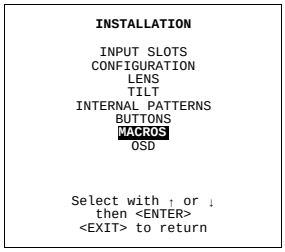
   The Macro menu will be displayed. (menu 7-46)
3. Push the cursor key ↑ or ↓ to highlight *Copy*.
4. Press **ENTER** to select.

   The copy selection menu will be displayed. (menu 7-47)
5. Push the cursor key ↑ or ↓ to highlight the desired file.
6. Press **ENTER** to select.

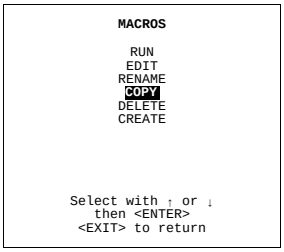
   The copy menu will be displayed. (menu 7-48)

   The first character of the file name in *To file name* will be highlighted.
7. Select with ← or → the desired character. Reprogram that character with ↑, ↓ or the numeric keys.
8. Repeat step 7 for the other characters.
9. Press **ENTER** to confirm the copy action.

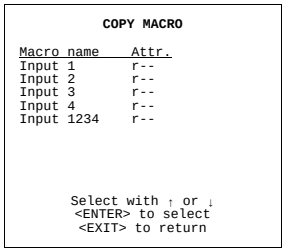
   The macro settings will be copied into the new file.



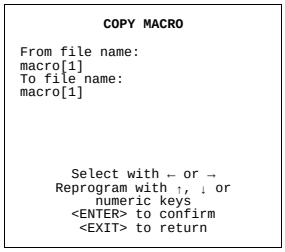
Menu 7-45



Menu 7-46



Menu 7-47



Menu 7-48

7.8.5 Delete a macro file

Only files with a read write attribute can be deleted.

How to delete ?

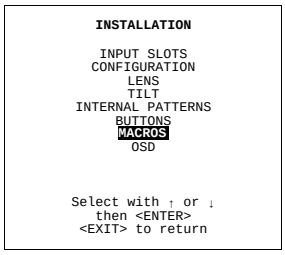
1. Push the cursor key ↑ or ↓ to highlight *Macros*. (menu 7-49)
2. Press **ENTER** to select.

   The Macro menu will be displayed. (menu 7-50)
3. Push the cursor key ↑ or ↓ to highlight *Delete*.
4. Press **ENTER** to select.

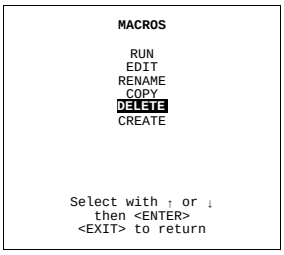
   The Delete macro menu opens. (menu 7-51)
5. Push the cursor key ↑ or ↓ to highlight the desired file.
6. Press **ENTER** to select.

   The Delete confirmation menu opens. (menu 7-52)
7. Press **ENTER** to confirm.

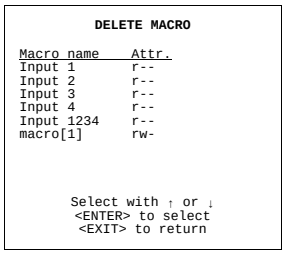
The macro file will be deleted.



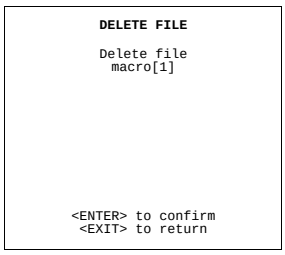
Menu 7-49



Menu 7-50



Menu 7-51



Menu 7-52

7.8.6 Create a macro file

How to create ?

1. Push the cursor key ↑ or ↓ to highlight *Macros*. (menu 7-53)
2. Press **ENTER** to select.

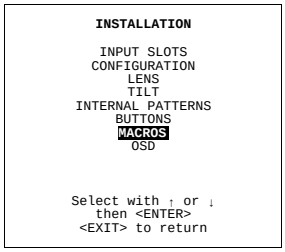
   The Macro menu will be displayed. (menu 7-54)
3. Push the cursor key ↑ or ↓ to highlight *Create*.
4. Press **ENTER** to select.

   The *Create macro* menu opens. (menu 7-55)

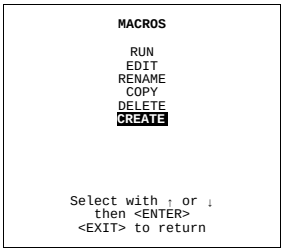
   A default macro name followed by a digit will be created. This default name can be renamed via Rename a macro. Macro functions can be added via Edit a macro.

   This new created macro will contain the active layout.
5. Press **ENTER** to confirm the creation.

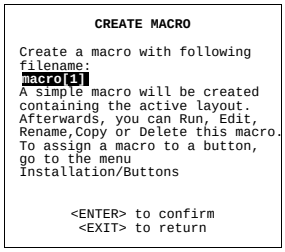
   The created file will have read-write attributes.



Menu 7-53



Menu 7-54



Menu 7-55

8. SERVICE

Overview

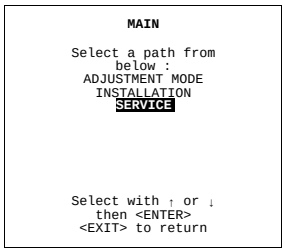
- Start up of the service menu
- Identification
- Change Projector Address – Common Address
- Communication
- Date and time setup
- Lamp
- Dimming-CLO
- Broadcast mode
- Convergence
- Diagnosis

8.1 Start up of the service menu

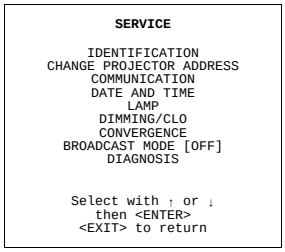
How to start up

1. Push the cursor key ↑ or ↓ to highlight *Service*. (menu 8-1)
2. Press **ENTER** to select.

   The service menu will be displayed. (menu 8-2)



Menu 8-1



Menu 8-2

8.2 Identification

What can be seen on the identification screen ?

The identification screen shows the general information of the projector.

The following items will be displayed:

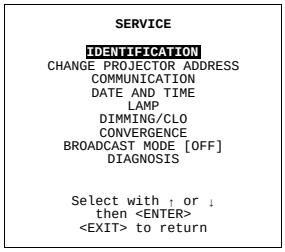
- Type of the projector.
- Software version
- Configuration, installation of the projector:
  - front/ceiling
  - front/table
  - rear/ceiling
  - rear/table
- Baud rate : transfer speed for communication with a computer. The baud rate of the projector must be the same as the baud rate of the connected computer. When there is a difference, consult 'Change Baudrate' in this chapter.
- Text, message and bar scales can be on or off.
- Projector serial number : indicates the fabrication number of the projector. This number can be useful when calling for technical assistance.
- Projector run time : total time the projector is running since its first start up.

Start up

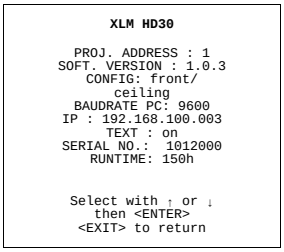
1. Push the cursor key ↑ or ↓ to highlight *Identification*. (menu 8-3)

2. Press **ENTER** to select.

   The *Identification* screen will be displayed. (menu 8-4)



Menu 8-3



Menu 8-4

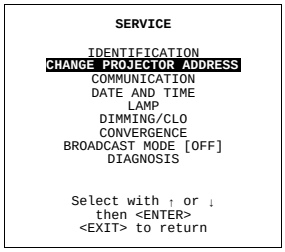
8.3 Change Projector Address – Common Address

How to change projector address ?

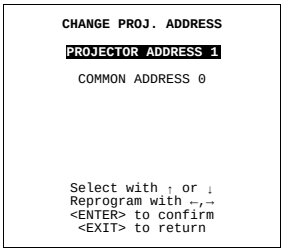
1. Push the cursor key ↑ or ↓ to highlight *Change projector address*. (menu 8-5)
2. Press **ENTER** to select.

   The Change Projector Address menu will be displayed and the actual address will be filled out. (menu 8-6)
3. Push the cursor key ↑ or ↓ to highlight *Projector address*.
4. Press **ENTER** to select.

   The digit will be highlighted.
5. Reprogram with ↑,↓,←,→ until the desired value is reached.
   Or,
   enter the digits directly with the numeric keys.



Menu 8-5



Menu 8-6

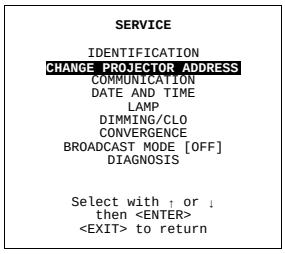
How to change the common address ?

1. Push the cursor key ↑ or ↓ to highlight *Change projector address*. (menu 8-7)
2. Press **ENTER** to select.

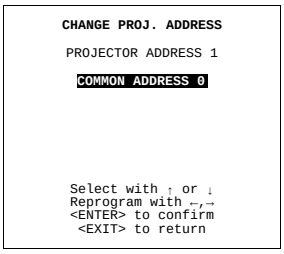
   The Change Projector Address menu will be displayed and the actual address will be filled out. (menu 8-8)
3. Push the cursor key ↑ or ↓ to highlight *Common address*.
4. Press **ENTER** to select.

   The digit will be highlighted.
5. Reprogram with ↑,↓,←,→ until the desired value is reached.

Or,
enter the digits directly with the numeric keys.



Menu 8-7



Menu 8-8

8.4 Communication

Overview

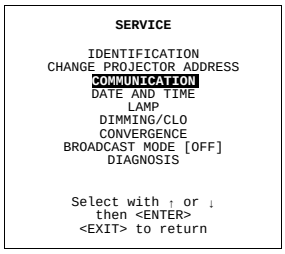
- Baud rate Setting
- Serial Interface setting
- RS422 Termination
- Network Configuration

8.4.1 Baud rate Setting

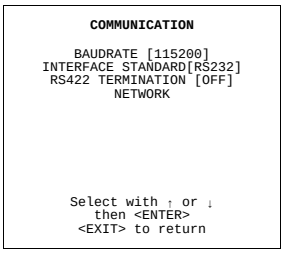
How to setup

1. Push the cursor key ↑ or ↓ to highlight *Communication*. (menu 8-9)
2. Press **ENTER** to select.

   The communication menu will be displayed. (menu 8-10)
3. Push the cursor key ↑ or ↓ to highlight *Baudrate*.
4. Press **ENTER** to toggle between the available baudrates.



Menu 8-9



Menu 8-10

Available baud rates

115200/57600/38400/19200/9600/4800/1200

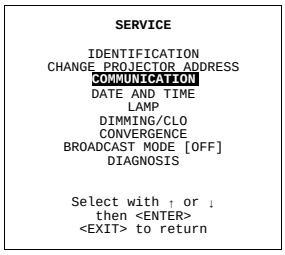
8.4.2 Serial Interface setting

Set up

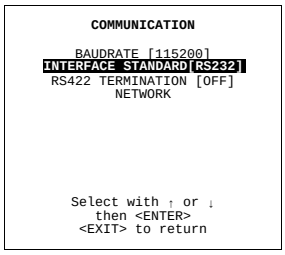
1. Push the cursor key ↑ or ↓ to highlight *Communication*. (menu 8-11)
2. Press **ENTER** to select.

   The communication menu will be displayed. (menu 8-12)
3. Push the cursor key ↑ or ↓ to highlight *RS232/RS422*.

4. Press **ENTER** to toggle between RS232 and RS422.



Menu 8-11



Menu 8-12

8.4.3 RS422 Termination

Set up

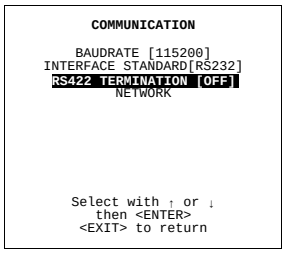
The last projector in a line should be RS422 terminated (ON position). All others in the line should be in the OFF position. To change the termination position:

1. Push the cursor key ↑ or ↓ to highlight RS422 Termination. (menu 8-13)

   The actual setting will be displayed.

2. Press **ENTER** to toggle between *ON* and *OFF*.

   Default : ON



Menu 8-13

8.4.4 Network Configuration

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.

What can be done?

The necessary network addresses (configuration) can be entered so that the projector can be connected to a LAN (local area network).

Set up the network configuration

1. Push the cursor key ↑ or ↓ to highlight *Communication*. (menu 8-14)
2. Press **ENTER** to select.

   The communication menu will be displayed. (menu 8-15)

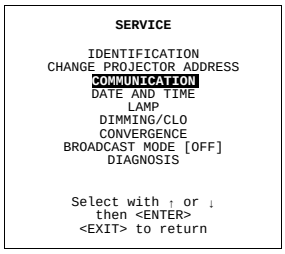
3. Push the cursor key ↑ or ↓ to highlight *Network Configuration*.
4. Press **ENTER** to select.

   The Network Configuration menu will be displayed (menu 8-16)

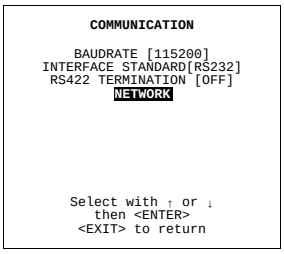
5. Set DHCP on or off (contact your network responsible for the correct setting in your environment).

   DHCP on — DHCP server assigned an IP address to the client (network projector).

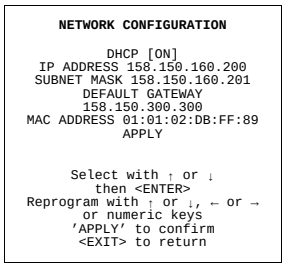
   DHCP off — the client has to fill out the IP address, the subnet mask and the default gateway.



Menu 8-14



Menu 8-15



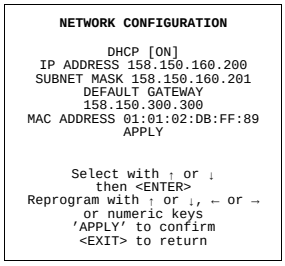
Menu 8-16

Entering the necessary addresses.

1. Select the IP address with the cursor keys. (menu 8-17)
2. Press **ENTER** to edit.
3. Enter or reprogram the address with the numeric keys (contact your network responsible for the correct address).

   An address contains 4 octets with a maximum value of 255, separated by a bullet.
4. Repeat the above steps for the subnet mask and the default gateway.
5. Select *APPLY* and press **ENTER** to install the entered addresses.

   If a wrong value for an octet is entered, the value will jump automatically to 255.



Menu 8-17

8.5 Date and time setup

Why?

As the processor logged information in a file, it is very interesting to know when exactly this information was logged.

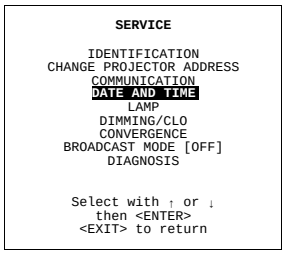
How to set up ?

1. Push the cursor key ↑ or ↓ to highlight *Date and Time*. (menu 8-18)
2. Press **ENTER** to select.

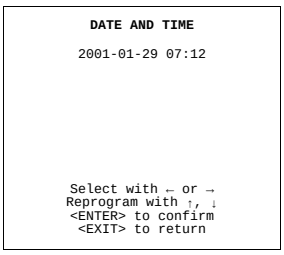
   The *Date and Time* menu will be displayed. (menu 8-19)

   The first digit will be highlighted.
3. Use the ↑ or ↓ key to change the value. Use the ← or → key to select the next digit.

4. Press **ENTER** to confirm the new values.



Menu 8-18



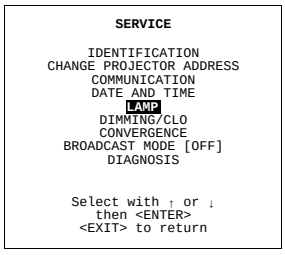
Menu 8-19

8.6 Lamp

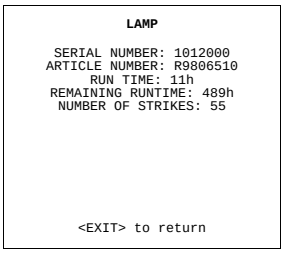
How to display the lamp information

1. Push the cursor key ↑ or ↓ to highlight *Lamp*. (menu 8-20)
2. Press **ENTER** to select.

   The lamp overview menu will be displayed. (menu 8-21)
   This menu indicates :
   - The serial number
   - The article number of the lamp
   - The run time
   - The remaining run time for a safe operation
   - The number of strikes since the first start up



Menu 8-20



Menu 8-21

8.7 Dimming-CLO

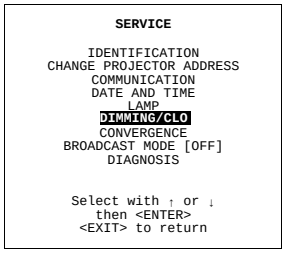
The CLO function in this menu are only active when a valid CLO key is entered.

How to set the power mode ?

1. Push the cursor key ↑ or ↓ to highlight *Dimming/CLO*. (menu 8-22)
2. Press **ENTER** to select.

   The *Dimming/CLO* menu will be displayed. (image 8-1)
3. Push the cursor key ↑ or ↓ to highlight *Mode*.
4. Press **ENTER** to toggle between [Economic], [Normal] or [CLO]

Economic	reduced power mode
Normal	normal power mode
CLO	power mode adapted to reach the target CLO



Menu 8-22

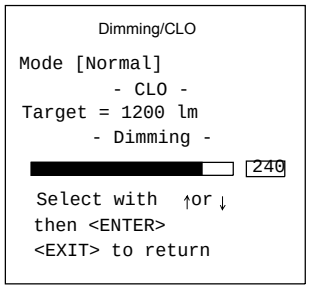
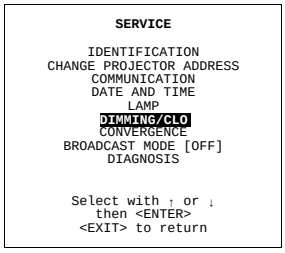


Image 8-1

Target CLO set up

1. Push the cursor key ↑ or ↓ to highlight *Dimming/CLO*. (menu 8-23)
2. Press **ENTER** to select.

   The *Dimming/CLO* menu will be displayed. (image 8-2)
3. Push the cursor key ↑ or ↓ to highlight *Target*.
4. Press **ENTER** to select.
5. Use the ↑ or ↓ keys to change the value.
6. Press **ENTER**.



Menu 8-23

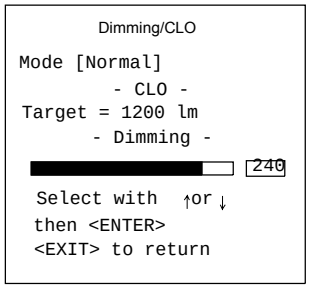
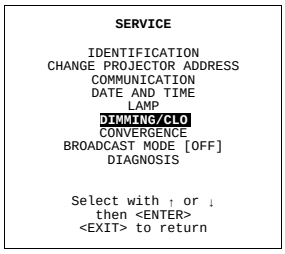


Image 8-2

Dimming

1. Push the cursor key ↑ or ↓ to highlight *Dimming/CLO*. (menu 8-24)
2. Press **ENTER** to select.

   The *Dimming/CLO* menu will be displayed. (image 8-3)
3. Push the cursor key ↑ or ↓ to highlight *Dimming*.
4. Press **ENTER** to select.
5. Use the ↑ or ↓ keys to change the value.
6. Press **ENTER**.



Menu 8-24

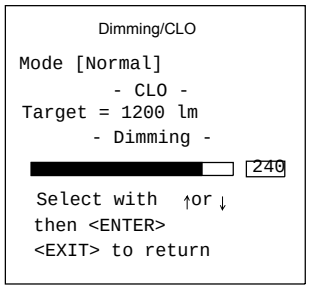


Image 8-3

When Mode on [CLO], dimming value will not be taken into account. When changing this value, the new setting will only be taken in account when toggling mode from [CLO] to [Normal].

8.8 Broadcast mode

What can be done?

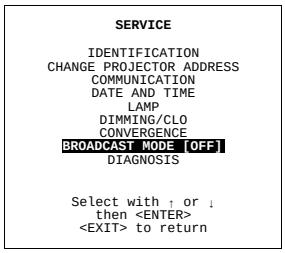
"Broadcast mode" enables special sequences for the DMD's to support specific sources such as the Thompson Grass Valley Worldcam. It shouldn't be used in any other circumstances as it would cause image flicker and dimmed images with normal sources.

How to toggle?

1. Push the cursor key ↑ or ↓ to highlight *Broadcast mode*. (menu 8-25)
2. Press **ENTER** to toggle between [On] and [Off].

[On] Broadcast mode on.

[Off] Broadcast mode off (default position)



Menu 8-25

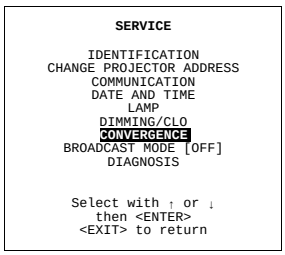
8.9 Convergence

How to adjust

1. Push the cursor key ↑ or ↓ to highlight *Convergence*. (menu 8-26)
2. Press **ENTER** to select.

   A convergence pattern will be displayed.

   For more information on how to adjust the convergence physically, consult the service and maintenance documents.
3. Press **ENTER** to switch to other patterns.



Menu 8-26

8.10 Diagnosis

Overview

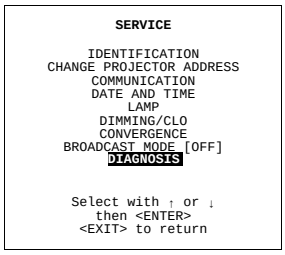
- Start up
- Errors
- Voltages
- Temperatures
- Fan speeds
- Versions

8.10.1 Start up

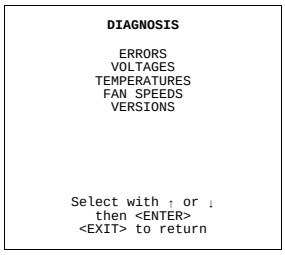
How to start up

1. Push the cursor key ↑ or ↓ to highlight *Diagnosis*. (menu 8-27)
2. Press **ENTER** to select.

The *Diagnosis* menu will be displayed. (menu 8-28)



Menu 8-27



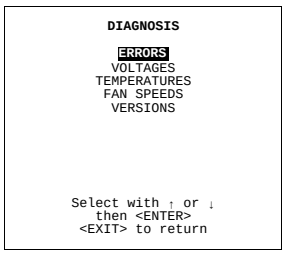
Menu 8-28

8.10.2 Errors

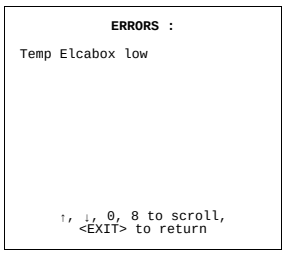
How to display errors

1. Push the cursor key ↑ or ↓ to highlight *Errors*. (menu 8-29)
2. Press **ENTER** to select.

   The *Errors* overview window will be displayed. (menu 8-30)
3. Use the ↑ or ↓ keys to scroll through the list of displayed errors.
4. Press **EXIT** to return to the Diagnosis menu.



Menu 8-29



Menu 8-30

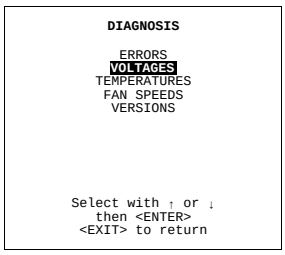
8.10.3 Voltages

The values, even the min and max values given on the printed menu are only given as an indication.

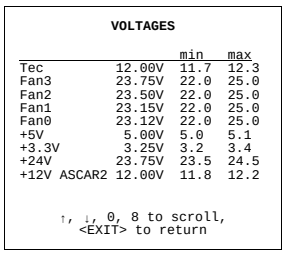
How to show the voltages

1. Push the cursor key ↑ or ↓ to highlight *Voltages*. (menu 8-31)
2. Press **ENTER** to select.

   The *Voltages* overview window will be displayed. (menu 8-32)
3. Use the ↑ or ↓ keys to scroll through the list of displayed voltages.
4. Press **EXIT** to return to the Diagnosis menu.



Menu 8-31



Menu 8-32

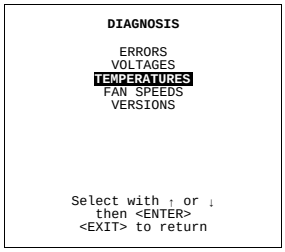
8.10.4 Temperatures

The values, even the min and max values given on the printed menu are only given as an indication.

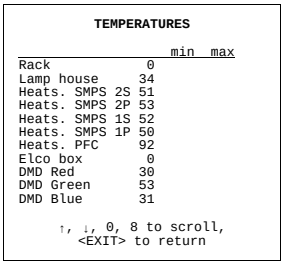
How to show the temperatures

1. Push the cursor key ↑ or ↓ to highlight *Temperatures*. (menu 8-33)
2. Press **ENTER** to select.

   The *Temperatures* overview window will be displayed. (menu 8-34)
3. Use the ↑ or ↓ keys to scroll through the list of displayed temperatures.
4. Press **EXIT** to return to the Diagnosis menu.



Menu 8-33



Menu 8-34

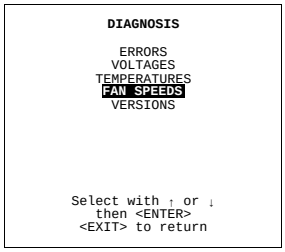
8.10.5 Fan speeds

The values, even the min values given on the printed menu are only given as an indication.

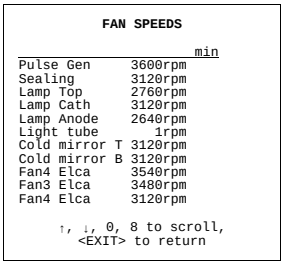
How to show the fan speed

1. Push the cursor key ↑ or ↓ to highlight *Fan speeds*. (menu 8-35)
2. Press **ENTER** to select.

   The *Fan speed* overview window will be displayed. (menu 8-36)
3. Use the ↑ or ↓ keys to scroll through the list of displayed fan speeds.
4. Press **EXIT** to return to the Diagnosis menu.



Menu 8-35



Menu 8-36

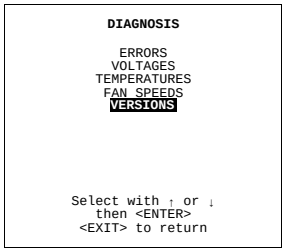
8.10.6 Versions

How to show the versions

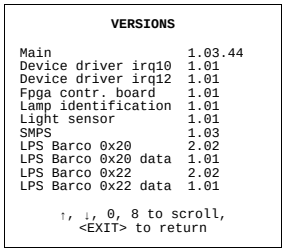
1. Push the cursor key ↑ or ↓ to highlight *Versions*. (menu 8-37)
2. Press **ENTER** to select.

   The *Versions* menu overview will be displayed. (menu 8-38)

3. Use the ↑ or ↓ keys to scroll through the list of displayed versions.
4. Press **EXIT** to return to the Diagnosis menu.



Menu 8-37



Menu 8-38

The version indication contains the version number (major.minor version) (e.g. 1.03) followed by a build number (e.g. 44)

A. SPECIFICATIONS

A.1 XLM HD30

Overview

Light Output	30000 Center Lumen
Brightness uniformity	> 80 % for the total screen
Contrast ratio	1600 : 1 (full field) high contrast mode: Available with special lenses
Resolution	2048 x 1080 (native)
Display	3 Chip DLP DC2K (resolution of 2048 x 1080 pixels (aspect ratio 1.89:1)).
Ambient Temperature	Max 35°C (95°F)
Lamp	6.3 kW Xenon Lamp warranty: 750 hrs
Lens Shift	Vertical: -10% to +110% Horizontal: -50% to +50% (samll differences exist per lens type)
On board display server	Ethernet control standard remote control projector over ethernet via Projector Toolset
Inputs	Modular inputs: Standard: 1x DVI 1x SDI 1x HD-SDI (all + loop through) 1x RGB Analogue (up to UXGA) Optional: 1x composite video/S-Video 1x RGB/YUV (both + loop through)
Outputs	DB15 out (2048*1080 50/60 HZ)
Communication	• 1x RS-232C IN (D-9 connector) • 1x RS-232C OUT (D-9 connector) • 1x RS-232C IN (XLR connector) • 1x 2way prop. protocol to Rugged remote (5 pins XLR connector) • 2x prop. protocol (RJ45 connector) • mini-jack for wired remote control

Compatibility	• All current video sources (PAL, SECAM, NTSC) in Composite, S-VHS, Component or RGB formats • All currently proposed HDTV, extended and improved television standards (1080i, 720p) • All computer graphics formats from VGA, SVGA, XGA, SXGA,full HD to UXGA • Most Macintosh computers • Electronic workstations with a resolution up to 1600 x 1200 pixels at 75 Hz • Most computer sources with a pixel clock up to 200 MHz • DVI sources up to DC2K (2048x1080)
Power Dissipation	max 25100 BTU/h
AC power	190V - 255V (50 Hz - 60Hz)
Weight	180 kg (400 lbs)
Dimensions	WxLxH: 810 x 1563 x 631 mm (31.9 x 61.5 x 24.8 inch)
Features	• Advanced multi windowing • Seamless switching with effects • Standard light shutter • rigging point • carrying handle • electronic tilt • high contrast mode • P7 color processing
Screen size	From 1-16m and higher / 3-52ft.recommended
Scan Frequencies	pixel clock >162Mhz (uxga 60hz)
ScenergiX	Standard horizontal and vertical electronic edge blending
Sealed DLP™ core	Standard
Mains Voltage	3 x 400 V + N or 3 x 220 V
Picture-in-picture	Up to 4 sources simultaneous (with alpha blending; z-order)
Power consumption	8400 W
Lens encoders	On zoom and focus (with TLD lenses)
Input source compatibility	1600 x 1200 (max. input)
Safety Regulations	Compliant with UL1950 and EN60950
Electromagnetic Interference	complies with FCC rules & regulations, part 15 Class A and CE EN55022 Class A
Throw Ratio	Lens Throw ratio XLD 1.0 - 1.0 Zoom lenses: XLD 1.45 - 1.8 -> 1.45 - 1.8 XLD 1.8 - 2.4 -> 1.8 - 2.4 XLD 2.2 - 3.0 -> 2.2 - 3.0 XLD 2.8 - 5.5 -> 2.8- 5.5 XLD 5.5 - 8.5 -> 5.5 - 8.5

Lenses	Fixed focal lenses: XLD 1.0 - R9852950 Zoom lenses: XLD 1.45 - 1.8 - R9852090 XLD 1.8 - 2.4 - R9852092 XLD 2.2 - 3.0 - R9852094 XLD 2.8 - 5.5 - R9852100 XLD 5.5 - 8.5 - R9852920
Noise Level	64dba @ 40°C
Network connection	Standard (10/100 base-T; 2 ports; internal HUB)
Dust filters	metal filters
Order Information	R9004460 (incl. 4 inputs) R9004461 (incl. 1 DVI) R9852411 (Spare Lamp)

B. STANDARD SOURCE SET UP FILES

B.1 Table overview

Table overview

The following standard source files are pre-programmed in the projector.

Name[1]	Resolution[2]	Fvert Hz[3]	FHor kHz[4]	Fpix MHz[5]	Ptot[6]	Pact[7]	Ltot[8]	Lact[9]
8514_A	1024x384i	43,479	35,522	44,900	1264	1024	409	384
CGA	640x200	59,924	15.700	14.318	912	640	262	200
COMPUSC4	1024x480i	29,945	30,694	39,779	1296	1024	512	480
ED	735x480	59,943	31,470	28,638	910	735	525	480
EGA	640x350	59,702	21,851	16,257	744	640	366	350
FMR	640x400i	42,323	36,440	28,570	784	640	431	400
FMTO_2	640x400	55,370	24,370	21,056	864	640	440	400
FOLSOM 2048x1080-50	2048x1080	50,000	56,24	139,72	2488	2048	1124	1080
FOLSOM 2048x1080-60	2048x1080	60,000	67,518	157,18	2328	2048	1125	1080
HD_24P	1920x1080	24,000	27,000	74,250	2750	1920	1125	1080
HD_24SF	1920x540	48,043	27,000	74,250	2750	1820	562	540
HD_25I	1920x540I	25,000	28,125	74,250	2640	1920	563	540
HD_25P	1920x1080	25,000	28,125	74,250	2640	1920	1125	1080
HD_30I	1920x540I	30,000	33n750	74,250	200	1920	563	540
HD_30I_2	1920x517I	30,000	33,750	74,250	2200	1920	563	517
HD_30P	1920x1080	30,000	33,750	74,250	2200	1920	1125	1080
HD_60P	1920x720	60,000	45,000	74,250	1650	1280	750	720
HDMAC	1252x570i	25,020	31,250	39,125	1252	1024	625	570
INTER_GR	1184x886	67,170	61,796	92,941	1504	1184	920	886
MAC_2	640x480	66,667	35,000	30,240	864	640	525	480
MAC_3	512x384	60,147	24,480	15,667	640	512	407	384
MAC_4	560_384	60,147	24,480	17,234	704	560	407	384
MAC_5	512x342	60,158	22,259	16,670	704	512	370	342
MAC_6	832x624	74,546	49,722	57,280	1152	832	667	624
MAC_7	1024x768	74,907	60,150	80,000	1330	1024	803	768

1. Name: name of file, contains the settings.
2. Resolution: image resolution, when followed by ..i means interlaced.
3. Fvert Hz: vertical frame frequency of the source
4. FHor kHz: horizontal frequency of the source
5. Fpix MHz: pixel frequency
6. Ftot : total pixels on one horizontal line.
7. Pact: active pixels on one horizontal line.
8. Ltot: total lines in one field
9. Lact: active lines in one field.

Name[1]	Resolution[2]	Fvert Hz[3]	FHor kHz[4]	Fpix MHz[5]	Ptot[6]	Pact[7]	Ltot[8]	Lact[9]
MAC_LC	640x480	66,619	34,975	31,338	896	640	525	480
MAC_POR	640x870	74,996	68,846	57,280	932	640	918	870
MUSE	1172x518i	30,000	33,750	37,125	1172	1024	563	518
MXGA_70	1152x864	70,014	63,853	94,502	1480	1152	912	864
MXGA_75	1152x864	74,999	67,499	107,999	1600	1152	900	864
MXGA_85	1152x864	85,000	77,095	121,502	1576	1152	907	864
PAM500	640x400	60,000	26,400	22,810	864	640	440	400
PAM800	1120x375i	44,936	36,443	50,000	1372	1120	406	375
PC98_1	640x400	56,416	24,823	21,050	848	640	440	400
PC98_2	1120x375i	39,994	32,835	47,840	1457	1120	411	375
PC98_3	1120x750	60,000	50,000	78,569	1571	1120	833	750
SG_50	1600x1200	50,000	62,500	130,313	2085	1600	1250	1200
SG_60_1	1280x1024	60,002	63,902	107,355	1680	1280	1065	1024
SG_60_2	1024x768	60,000	48,780	64,390	1320	1024	813	768
SG_60_3	960x680	60,000	43,200	54,432	1260	960	720	680
SG_60_4	1600x1200	60,000	75,000	156,375	2085	1600	1250	1200
SUN 1152x900-66	1152x900	66,000	61,847	64,502	1528	1152	937	900
SUN 1152x900-76	1152x900	76,63	74,808	107,992	1504	1152	937	900
SUN 1600x1280-67	1600x1280	66,931	89,286	200,000	2240	1600	1334	1280
SUN-SXGA-67	1280x1024	67,188	71,690	116,998	1632	1280	1067	1024
SUN-SXGA-67	1280x1024	76,106	81,129	134,999	1664	1280	1066	1024
SUNXGA60	1024x768	59,984	48,287	64,125	1328	1024	805	768
SUNXGA70	1024x768	70,041	56,596	74,250	1312	1024	808	768
SUNXGA77	1024x768	77,069	62,040	84,375	1360	1024	805	768
SUP_MAC	1024x768	60,000	48,780	63,999	1312	1024	813	768
SVGA_56V	800x600	56,250	35,156	36,000	1024	800	625	600
SVGA_60V	800x600	60,317	37,879	40,000	1056	800	628	600
SVGA_72V	800x600	72,084	48,080	50,003	1040	800	667	600
SVGA_EOS	800x600	46,228	48,077	32,067	1024	800	667	600
SXGA-100	1280x1024	62,039	107,207	124,923	1728	1280	1072	1024

Name[1]	Resolu-tion[2]	Fvert Hz[3]	FHor kHz[4]	Fpix MHz[5]	Ptot[6]	Pact[7]	Ltot[8]	Lact[9]
SXGA-50	1280x1024	31,161	52,350	54,811	1680	1280	1047	1024
SXGA-60	1280x1024	38,037	63,902	68,055	1680	1280	1065	1024
SXGA-60V	1280x1024	36,839	63,658	67,222	1728	1280	1056	1024
SXGA-72	1280x1024	72,002	76,970	130,08	1690	1280	1069	1024
SXGA-75	1280x1024	75,023	79,974	134,997	1688	1280	1066	1024
SXGA-85	1280x1024	85,027	91,149	157,506	1728	1280	1072	1024
SXGA-100	1280x1024	62,039	107,207	124,923	1728	1280	1072	1024
UXGA-48V	1600x600	96,006	62,500	135,000	2160	1600	651	600
UXGA-60V	1600x600	60,001	75,001	162,004	2160	1600	1250	1200
UXGA-65V	1600x1200	64,998	81,248	175,496	2160	1600	1250	1200
UXGA-70V	1600x1200	69,997	87,497	188,993	2160	1600	1250	1200
VGA_72V	640x480	72,800	37,856	31,496	832	640	520	480
VGA-75	640x480	75,000	37,499	31,499	840	640	500	480
VGA-85	640x480	85,009	43,269	36,000	832	640	509	480
VGA_GR+PH	640x480	59,941	31,469	25,175	800	640	525	480
VGA_TXT	720x400	70,087	31,469	28,322	900	720	449	400
VGA75ISO	640x480	75,000	39,375	31,500	800	640	525	480
VIDEO525-2	675x480	59,939	31,468	26,999	858	675	525	480
VIDEO625-2	675x556	50,000	31,250	27,000	864	675	625	556
WXGA_ 1920x1200-60	1920x1200	60,000	74,074	154,07	2080	1920	1235	1200
WXGA_ 1280x800-60	1280x800	60,000	49,310	71,01	1440	1280	823	800
WXGA_ 1440x900-60	1440x900	60,000	55,463	88,74	1600	1440	926	900
XGA_60	1024x768	60,000	48,360	64,996	1344	1024	806	768
XGA_70	1024x768	70,000	57,050	78,044	1368	1024	815	768
XGA_70V	1024x768	69,705	56,182	74,610	1328	1024	806	768
XGA_72	1024x768	71,955	58,140	80,000	1376	1024	808	768
XGA_75	1024x768	75,781	61,080	86,000	1408	1024	806	768
XGA75_GS	1024x768	74,534	59,701	79,284	1328	1024	801	768
XGA-85	1024x768	84,996	68,677	94,499	1376	1024	808	768

Name[1]	Resolution[2]	Fvert Hz[3]	FHor kHz[4]	Fpix MHz[5]	Ptot[6]	Pact[7]	Ltot[8]	Lact[9]
XGA-100	1024x768	100,000	80,802	110,54	1368	1024	808	768
XGA-EOS	1024x768	62,814	50,000	67,200	1344	1024	796	768

Table B-1

C. MAINTENANCE

Overview

- Pressure check of cooling liquid circuit
- Cleaning the dust filters
- Cleaning the lens

C.1 Pressure check of cooling liquid circuit

When should it be done ?

The pressure of the cooling circuit should be checked on regular times. At least when replacing the lamp.

How to check

1. Unplug the projector from the wall outlet.
2. On the input side of the projector, remove the side by turning the 3 quarter turn fastener studs a quarter turn counter clockwise. (image C-1)
3. Pull the top side of the cover out of its spring locks.
4. Check the manometer. The manometer is situate on the top right of the lamp house compartment. (image C-2)

   The pressure should be ± 1 bar (with projector in OFF state). When lower than 0.5 bar, a corrective action should be taken by qualified service personnel.

   Any significant drops in pressure indicates leakage of liquid in the cooling circuit.
5. Hook on the side cover and close the 3 quarter turn fastener studs a quarter turn clockwise.

Image C-1
Removing the side cover

Image C-2
Pressure control

C.2 Cleaning the dust filters

These items should be cleaned monthly under normal environment conditions. Equipment in very dusty or otherwise contaminated areas may require more frequent maintenance.

If the air filters are not regularly cleaned, the air flow inside the projector could be disrupted and cause overheating. Overheating may lead to the projector shutting down during operation.

Location of the air filters

Two dust filters are situated in the side cover on the opposite side of the inputs.

One dust filter is situate on the front side but can be reached by opening the side cover on the input side.

Removing the air filters

1. Unplug the projector from the wall outlet.
2. On the input side of the projector, remove the side by turning the 3 quarter turn fastener studs a quarter turn counter clockwise. (image C-3)
3. Pull the top side of the cover out of its spring locks.
4. Take the dust filter by the handles and slide out the dust filter on the front side of the projector. (image C-4)
5. Clean that dust filter and reinstall. Close the side cover.
6. Open the side cover on the opposite side in the same way and lay down the cover.
7. To take out the first dust filter : left up both handles a little bit so that the frame of the filter comes out of its socket and pull out the filter. (image C-5, image C-6)
8. To take out the second dust filter which is cover by a metal plate, handle in the same way as for the previous dust filter. (image C-7)
9. Clean the filters and reinstall. Close the side cover.

Image C-3
Removing the side cover

Image C-4
Front side dust filter

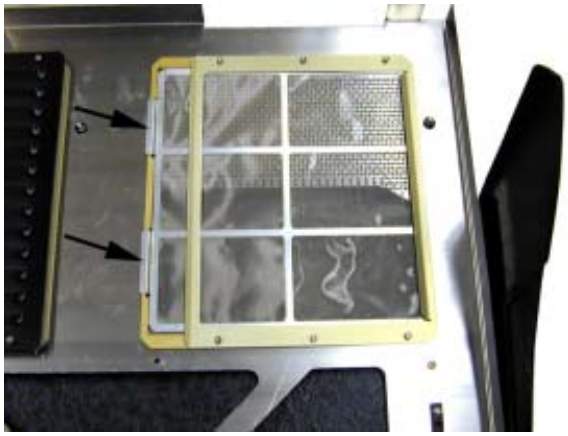


Image C-5
First side dust filter

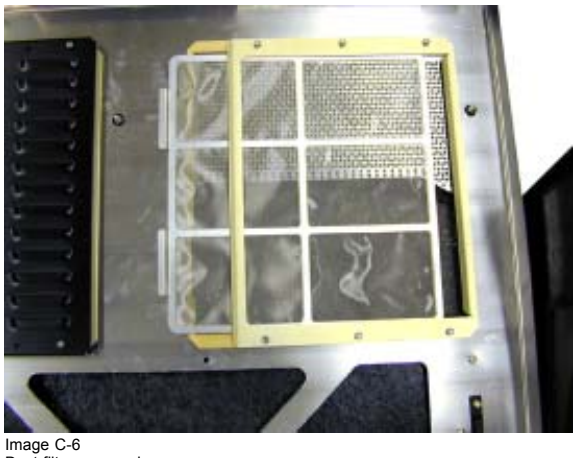


Image C-6
Dust filter removed

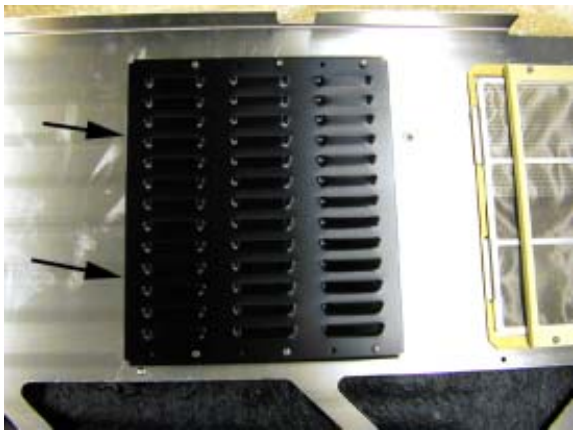


Image C-7
Second dust filter

How to clean the dust filters

1. Vacuum out the major dust.
2. Blow away remaining dust with compressed air in an other room or outside.
   Tip: *This parts should be cleaned approximately every six months under normal environmental conditions. A projector in a very dusty area requires more frequent maintenance, advisable monthly.*

C.3 Cleaning the lens

To minimize the possibility of damage to optical coatings, or scratches to lens surfaces, we have developed recommendations for clean. 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 ?

Proceed as follow :

1. Always wipe lenses with a CLEAN Toraysee™ cloth.
2. Always wipe lenses in a 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 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.

GLOSSARY

2:2 pull-down

The process of transferring 24-frames/sec film format into video by repeating each frame (used for PAL DVD's) as two video fields. (AD)

3:2 pull-down

Method used to map the 24 fps of film onto the 30 fps (60 fields) or 25 fps (50 fields), so that one film frame occupies three video fields, the next two, etc. It means the two fields of every other video frame come from different film frames making operations such as rotoscoping impossible, and requiring care in editing. Some sophisticated equipment can unravel the 3:2 sequence to allow frame-by-frame treatment and subsequently re-compose 3:2. The 3:2 sequence repeats every five video frames and four film frames, the latter identified as A-D. Only film frame A is fully on a video frame and so exists at one time code only, making it the editable point of the video sequence.

Alpha Blending

Alpha Blending enables the ability to add transparency to any selected source.

Artefacts

Undesirable elements or defects in a video picture. These may occur naturally in the video process and must be eliminated in order to achieve a high-quality picture. Most common in analog are cross color and cross luminance. Most common in digital are macroblocks, which resemble pixelation of the video image.

Color key

Sometimes also called chroma key. This is a method of combining two video images. An example of chroma keying in action is the nightly news person standing in front of a weather map. In reality, the person is standing in front of a blue or green background and the camera image is mixed with a computer-generated weather map. This is how it works: a TV camera is pointed at the person and fed along with the image of the weather map into a box. Inside the box, a decision is made. Wherever it sees the blue or green background, it displays the weather map. Otherwise, it shows the person. So, whenever the person moves around, the box figures out where he is, and displays the appropriate image.

Color space

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

Common address

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

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.

Gamma

The transfer characteristics of most cameras and displays are nonlinear. For a display, a small change in amplitude when the signal level is small produces a change in the display brightness level, but the same change in amplitude at a high level will not produce the same magnitude of brightness change. This nonlinearity is known as gamma. Different gamma curves are available to compensate the nonlinearity.

Projector address

Address installed in the projector to be individually controlled.

Projector white

Native white of the projector (non calibrated white).

RS232

An Electronic Industries Association (EIA) serial digital interface standard specifying the characteristics of the communication path between two devices using either DB-9 or DB-25 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 a 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’..

Z-order

The layer sequence in which windows will be displayed in relation to one another.

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Revision Sheet

To:

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Date: _____

Please correct the following points in this documentation (**R59770014/00**):

page	wrong	correct