BARCO

R5976426
user's manual

CYCLOPS

R5976426

Title: CYCLOPS User's Manual

ID-no.: **R5976426**

Date: 2001-12

	main issue	update
chapter 1	new	
chapter 2	new	
chapter 3	new	
chapter 4	new	
chapter 5	new	
chapter 6	new	
chapter 7	new	
chapter 8	new	
chapter 9	new	
chapter 10	new	
chapter 11	new	
chapter 12	new	
chapter 13	new	
chapter 14	new	
chapter 15	new	

new: The corresponding chapters are new or completely revised.

corr.: Passages of the corresponding chapter were corrected; see modification bars.

add.: Passages of the corresponding chapter were added; see modification bars.

Document History

Modifications which result in a new version are indicated by a vertical bar.

Keep this sheet!

Trademarks

Brand and product names mentioned in this manual may be trademarks, registered trademarks or copyrights of their respective holders. All brand and product names mentioned in this manual serve as comments or examples and are not to be understood as advertising for the products or their manufacturers.

Copyright © 2001 by Barco Control Rooms GmbH

Die Weitergabe sowie die Vervielfältigung aller Unterlagen, die von uns überlassen werden, deren Verwertung und Mitteilung ihres Inhaltes an Dritte ist nicht gestattet, soweit dies nicht ausdrücklich zugestanden ist. Urheberrechte, insbesondere auch solche an Software, werden nur insoweit übertragen, als es für die Erreichung des speziellen Vertragszwecks erforderlich ist. Zuwiderhandlungen können zu Schadensersatz verpflichten. Alle Rechte aus der Erteilung eines Patents oder der Eintragung eines Gebrauchsmusters verbleiben bei uns.

Copyright © 2001 by Barco Control Rooms GmbH

All rights reserved. No part of this document may be copied, reproduced or translated. It shall not otherwise be recorded, transmitted or stored in a retrieval system without the prior written consent of Barco Control Rooms GmbH.

Guarantee and Compensation

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

The period of guarantee begins on the date of transfer of risks, in the case of special systems and software on the date of commissioning, at the latest 30 days after the transfer of risks. In the event of justified notice of complaint, Barco Control Rooms GmbH can repair the fault or provide a replacement at its own discretion within an appropriate period. If this measure proves to be impossible or unsuccessful, the purchaser can demand a reduction in the purchase price or cancellation of the contract. All other claims, in particular those relating to compensation for direct or indirect damage, and also damage attributed to the operation of software as well as to other services provided by Barco Control Rooms GmbH, being a component of the system or independent services, will be deemed invalid provided the damage is not proven to be attributed to the absence of properties guaranteed in writing or due to the intent or gross negligence on the part of Barco Control Rooms GmbH

If the purchaser or a third party carries out modifications or repairs on good delivered by Barco Control Rooms GmbH, or if the goods are handled incorrectly, in particular if the systems are commissioned or operated incorrectly or if, after the transfer of risks, the goods are subject to influences not agreed upon in the contract, all guarantee claims of the purchaser will be rendered invalid. Not included in the guarantee coverage are system failures which are attributed to programs or special electronic circuitry provided by the purchaser, e. g. interfaces. Normal wear as well as normal maintenance are not subject to the guarantee provided by Barco Control Rooms GmbH either.

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

Revision sheet

To:

▶ **Barco Control Rooms GmbH**
An der Rossweid 5 • D-76229 Karlsruhe • Germany
Phone (49) (721) 6201-0 • Fax (49) (721) 6201-298
E-mail **docu.de.bcd@barco.com**, Web **www.barcocontrolrooms.de**

▶ **BARCO N.V. Projection Systems**
Noordlaan 5 • B-8520 Kuurne • Belgium
Phone (32) (56) 36-8211 • Fax (32) (56) 36-8251
E-mail **sales.bcd@barco.com**• Web **www.barcocontrolrooms.com**

From:

Date:

Please correct the following points in this documentation (**R5976426**)

page	wrong	correct

Contents

1 Introduction

This manual describes design, function, operation and maintenance of the modular rear projection system CYCLOPS of BARCO.

CYCLOPS is a modular structure to house a 3-panel Poly-Silicon LCD projector. Cyclops 100S has a screen diagonal of approx. 100" (98"), up to 2 units can be piled up. In horizontal direction the number of units to be aligned depends on the operating conditions (temperature, relative humidity).

The projector of CYCLOPS has native SXGA resolution (5:4 aspect ratio) and allows you to display a wide variety of common video and RGB sources. The display can be controlled via an IR remote control or via an integrated keypad.

1.1 How This Manual Is Organized

This manual is divided into fifteen chapters:

▶ **Preliminary Remarks**
explains the structure of the manual itself and the used typographic styles and symbols. Safety information is provided concerning the operation of systems from BARCO.

▶ **Summary**
provides a summary of the system components and characteristics.

▶ **Design and Functions**
provides a technical description of the equipment listing the fundamental characteristics and functional principles. Knowledge of this section is not absolutely essential for operation.

▶ **Location and Functions of Control**
describes the functions and explains the control panel terminology

▶ **Connections**
describes the interfaces of CYCLOPS

▶ **Controlling**
explains how CYCLOPS is operated via the Remote Control Unit and the local keypad

▶ **Start Up of the Adjustment Mode**
explains how to use the menu controlled software of CYCLOPS

▶ **Random Access Adjustment Mode**
provides an overview of the commands of CYCLOPS

▶ **Installation Mode**
describes the possible configurations of CYCLOPS

▶ **Service Mode**
explains the commands which are available in Service Mode

▶ **Maintenance and Servicing**
explains how the equipment can be serviced

▶ **Technical Data**
provides tabular overviews about the technical details of CYCLOPS.

▶ **Troubleshooting**
lists possible errors together with steps to eliminate the respective fault.

▶ **Appendix A: Standard Source Set Up Files**
lists all the available set up files for the various timings

▶ **Appendix B: Source Numbers 81-85 AND 91-96**
explains the relationship between source input, source number and set up file

Chapters, pages, figures and tables are numbered separately. Chapters are indicated by a »point syntax«, e. g. **4.2.3**, pages by a »dash syntax«, e. g. **2-1**, as figures and tables are, e. g. **Figure 5-4**.

1.2 Styles And Symbols

The typographic styles and the symbols used in this document have the following meaning:

Arial bold

Labels, menus and buttons are printed in the **Arial bold** font.

Condensed

Links to both other chapters of this manual and to sites in the Internet are printed condensed. In the on-line version of this manual all hyperlinks appear teal.

Courier

Names of files and parts from programs are printed in the Courier font.

Courier bold

Inputs you are supposed to do from the keyboard are printed in **Courier bold** font.

✍ **Within a piece of programming code this arrow marks a line, that must be made up in two lines, though meant to be one line.**

This arrow marks tips and notes.

If you do not heed instructions indicated by this symbol there is a risk of damage to the equipment!

If you do not heed instructions indicated by this symbol there is a risk of electrical shock and danger to personal health!

1.3 Safety Information

This section describes safety precautions which must be observed when installing a product from BARCO.

Safetey

CYCLOPS is built in accordance with the requirements of the international safety standard IEC950, UL1950 and CSA C22.2 No. 950, which are the safety standards of information technology equipment including electrical business equipment.

The safety standards of information technology equipment impose important requirements on the use of safety critical components, materials and isolation, in order to protect the user or operator against the risk of electric shock and energy hazard, and having access to live parts.

Safety standards also impose limits to the internal and external temperature rises, radiation levels, mechanical stability and strength, enclosure construction and protection against risk of fire.

Simulated single fault condition testing ensures the safety of the equipment to the use even when the equipment's normal operation fails.

General safety instructions

‣ All the safety and operating instructions should be read before using this unit.

‣ The operating instructions manual should be retained for future reference.

‣ All warnings on the device and in the documentation manuals should be adhered to.

‣ All instructions for operating and use of this equipment must be followed precisely.

Installation and Service

Installation and preliminary adjustments should be performed by qualified BARCO personnel or authorized BARCO service dealers.

On Safety

	Check the power rating on your outlet before connecting the devices to the wall outlet or to a power strip. Contact your facilities manager or a qualified electrician if you are not sure what type of power is supplied to your building.

	The devices are designed to operate with single-phase power systems having a grounded neutral conductor. To reduce the risk of electrical shock, do not plug into any other type of power system.

A. Mains lead (AC Power cord) with CEE 7 plug:

The colors of the mains lead are colored in accordance with the following code:

Green-and-yellow:	Earth (safety earth)
Blue:	Neutral
Brown:	Line (live)
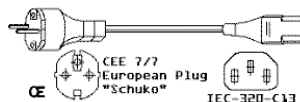
B. Power cord with ANSI 73.11 plug:

The wires of the power cord are colored in accordance with the following code:

Green/yellow: Ground

White: Neutral

Black: Line (live)

▸ Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.

▸ To disconnect the cord, pull it out by the plug. Never pull the cord itself.

▸ If an extension cord is used with this product, make sure that the total of the ampere ratings on the products plugged into the extension cord does not exceed the extension cord ampere rating. Also make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.

▸ Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electrical shock.

▸ Never spill liquid of any kind on the product. Should any liquid or solid object fall into the cabinet, unplug the set and have it checked by qualified service personnel before resuming operations.

⚠ Warning: Do Not Place Flammable or Combustible Materials Near Projector!

BARCO products are designed and manufactured to meet the most stringent safety regulations. Exposing flammable or combustible materials into close proximity of this device could result in the spontaneous ignition of that material, resulting in a fire. For this reason, it is absolutely necessary to leave an "exclusion zone" around all external surfaces of the projector whereby no flammable or combustible materials are present. The exclusion zone must be not less than 10 cm (4"). Do not cover the projector with any material while the projector is in operation.

Keep flammable and combustible materials away from the projector at all times. Mount the projector in a well ventilated area away from sources of ignition and out of direct sun light. Never expose this product to rain or excessive moisture. In the event of fire, use sand, CO_2, or dry powder fire extinguishers; never use water on an electrical fire.

Always have service performed on this product by authorized BARCO service personnel. Always insist on genuine BARCO replacement parts. Never use non-BARCO replacement parts as they may degrade the safety of this device.

Use only the power cord supplied with your device. While appearing to be similar, other power cords have not been safety tested at the factory and may not be used to power the projector. For a replacement power cord, contact your dealer.

Slots and openings in the cabinet and the sides are provided for ventilation; to ensure reliable operation of the device and to protect it from overheating, these openings must not be blocked or covered. This product should never be placed near or over a radiator or heat register. This product should not be placed in a built-in installation or enclosure unless proper ventilation is provided.

On Servicing

Do not attempt to service this device yourself, as opening or removing covers may expose you to dangerous voltage potential and risk of electric shock! Refer all projector service to a qualified BARCO service center.

Adjust only those controls that are covered by the operating instructions since improper adjustment of the other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.

Call for service in the following conditions :

▸ When the power cord or plug is damaged or frayed.

▸ If liquid has been spilled into the device.

▸ If the product has been exposed to rain or water.

▸ If the product does not operate normally when the operating instructions are followed.

▸ If the product has been dropped or the cabinet has been damaged;

▸ If the product exhibits a distinct change in performance, indicating a need for service.

When replacement parts are required, be sure the service technician has used original BARCO replacement parts or authorized replacement parts which have the same characteristics as the BARCO original part. Unauthorized substitutions may result in degraded performance and reliability, fire, electric shock or other hazards. Unauthorized substitutions may void warranty.

Upon completion of any service or repairs to this unit, ask the service technician to perform safety checks to determine that the unit is in proper operating condition.

1.3.1 Precautions

For your own protection, observe the following safety precautions when installing your device!

▸ Observe all warnings and instructions printed on the devices!

▸ Check that the voltage and frequency of your power supply match those printed on the device label with the rated electrical values!

▸ Servicing not explicitly mentioned in this manual should never be carried out by unauthorized personnel!

1.3.2 Unpacking of Devices

Note advises on the packaging for unpacking!

1.3.3 Modification of Devices

Mechanical or electrical modifications others than described in this manual must not be made to the devices. BARCO is not liable for damages resulting from modified devices.

Only authorized personnel should carry out other maintenance work not explicitly mentioned in this user's manual!

Never open the case of the power supply or of the projection unit without first disconnecting the power supply cord! Measurements and tests with an opened device may be carried out only in the factory or by specially trained personnel, due to the dangers of electrical shock.

2 Abbreviated Summary

This chapter provides a summary of the system components and characteristics.

2.1 Design

High-quality and large-area displaying of monitor contents is becoming increasingly important in conference and presentation theaters, at exhibitions, in public areas of insurance companies, banks, hotels or transport services. Personal computers are primarily used in this context, but also UNIX workstations. Simple data presentations are being increasingly supplemented by multimedia applications with video displays. CYCLOPS provides optimum solutions which also satisfy the highest demands. CYCLOPS is multimedia-compatible since it can be connected to any current source (digital and analog camcorder sources, analog video tape sources, DVD, Laserdisc, digital video tape sources, computer data sources). Audio reproduction is possible by connecting amplifiers or active boxes to the audio socket. Personal computers with the following graphics adapters can be connected as the data sources: SXGA, XGA, SVGA, VGA. Workstations, Apple Macintosh and Power Macintosh are also supported. Remote real-time switching is possible between all sources.

CYCLOPS can be used as one large monitor with a screen diagonal of 100 inches – or multiple units can be combined to achieve an impressive Display Wall. CYCLOPS is designed for long term operation in control rooms and each application can benefit from the high reliability and ease of use.

2.2 Properties of CYCLOPS

CYCLOPS can be used as one large monitor with a screen diagonal of 100 inches. The technologies used guarantee the best optical properties for high-quality presentation of both computer data and video displays:

▸ **High, Constant Reading Accuracy Over the Complete Display Panel**
Optimally adjusted high-performance lens systems guarantee a distortion-free and sharp image.

▸ **Bright Displays**
A 120 W UHP lamp provides a high luminous flux which is passed on at great efficiency by the illumination system.

▸ **High Contrast**
The screen has a surface which absorbs ambient light falling on it and increases the contrast.

▸ **Easy Adjustment and Low-maintenance**
Readjustment of the components is not required. The operation time of the lamps is about 6000 hours.

▸ **Ready for any application**
The source is automatically recognized. The projector has intelligent and user-adjustable priority switching.

3 Design and Function

This chapter provides a technical description of the equipment listing the fundamental characteristics and functional principles. Knowledge of this section is not absolutely essential for operation.

3.1 Components of Cyclops

CYCLOPS consists of the following components:

‣ Mechanical structure: the metal housing incorporates the projector, mirror and screen.

‣ Projector: The projector employed in CYCLOPS is based on most modern 3-panel poly-Silicon LCD technology. It is an independent device, including lamp, control unit, interfaces. The projector is mounted on a support; once adjusted, the position is locked, and no re-adjustment is needed.

‣ Deflection mirror: a mirror in the top part of the housing deflects the light onto the rear of the projection screen.

‣ For Cyclops 100S, two kinds of screen are available, a double element Fresnel-Lenticular screen with high gain and a single element diffusion screen with high vertical and horizontal viewing angles (important when sitting close to the wall)

3.1.1 Structure

The structure incorporates the projector, the mirror, and the screen. All elements are optically adjusted to provide an optimized image. Due to the principle of rear projection, high contrast ratio is provided even at daylight.

If required, Cylops can be outfit with an architectural trim around the screen and/or a cladding.

3.1.2 Deflection Mirror

Due to folding up the optical path by a mirror the entire depth of CYCLOPS is only 1487 millimeters.

3.1.3 Projection System

The projector is mounted via a support. The light path is folded up by a mirror to shorten the installation depth. The image is projected onto the rear of the screen.

1	Projector
2	Mirror
3	Screen

Figure 3-1
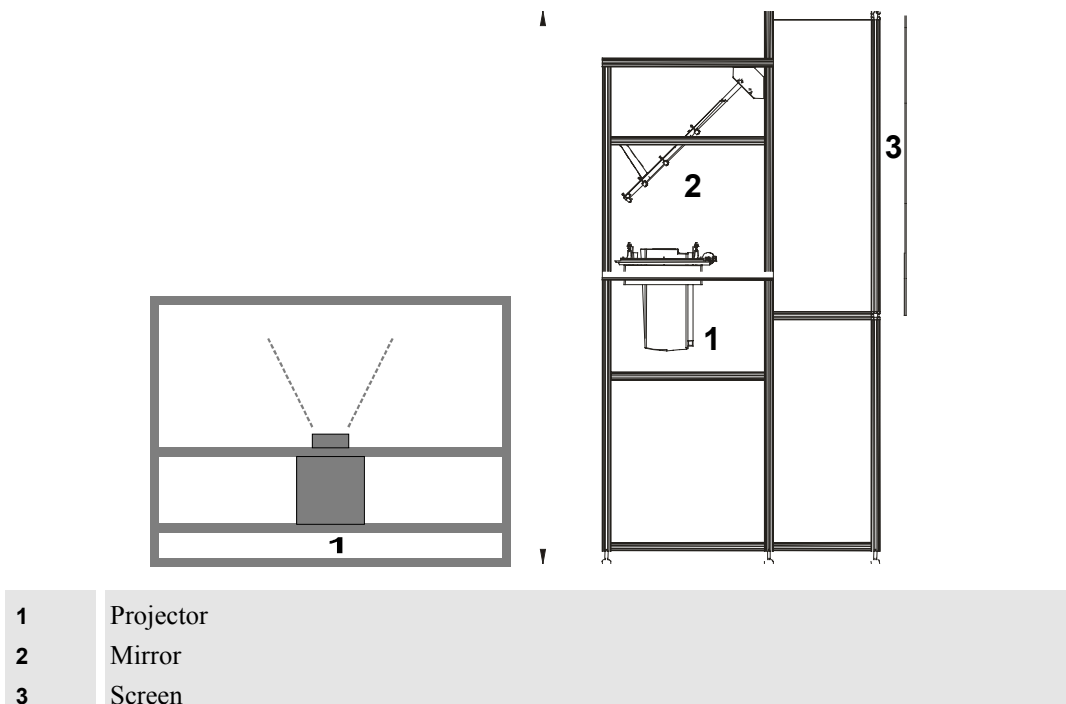
▸ **Poly-Silicon TFT-LCD**
The LCD panels are based on Poly-Silicon technology. Poly-Silicon material consists of numerous small crystals leading to small circuitry. The results are a big aperture (ratio of a pixel's shutter area to it's total area), high speed and reliability. The panels have 1,310,720 (SXGA 1280×1024) pixels.

3.1.4 Screen Module

The image is generated in the screen module.

Two kinds of screens are available, a double element Fresnel-Lenticular screen with a high gain and a single element diffusion screen, which, due to its excellent white field uniformity, is recommended when sitting close to the wall.

Fresnel-Lenticular Screen

The screen is a double element system with 4 active lens surfaces for optimum light control. It combines high brightness uniformity with a fine pitch and wide viewing angles. The rear element consists of a Fresnel lens which directs all projected light forwards at a right-angle. The first lenticular lens on the front element of the screen controls vertical viewing angles. The unique profile of the wide angle lenticular lens distributes the light horizontally.
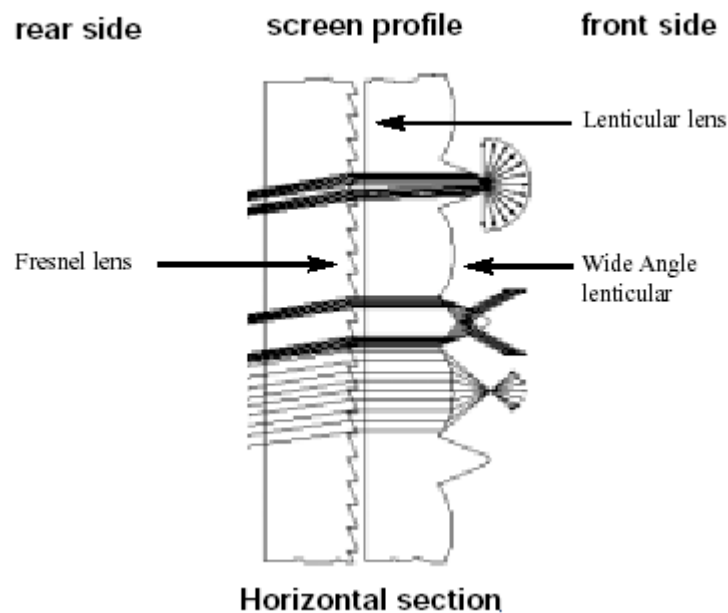
▸ **Fresnel Lens**
The Fresnel lens deflects the light coming from the projection lens system such that it falls perpendicularly onto the lenticular screen.

▸ **Lenticular Lens**
The lenticular lens guarantees that the light is distributed horizontally.

Diffusion Screen

Diffusion screens distribute the projected light evenly over a wide horizontal and vertical viewing area. The reflection value (gain) is 1.They are appreciated for their versatility. It is a perfect choice for any application which requires a wide viewing angle or where ambient light conditions are controllable.

4 Location and Functions of Control

This chapter provides an overview about the controls of Cyclops.

4.1 Access

1	control unit
2	keypad
3	lamp module
4	filter pad

4.2 Control Unit

4.2.1 Power, source and communication connections [1]
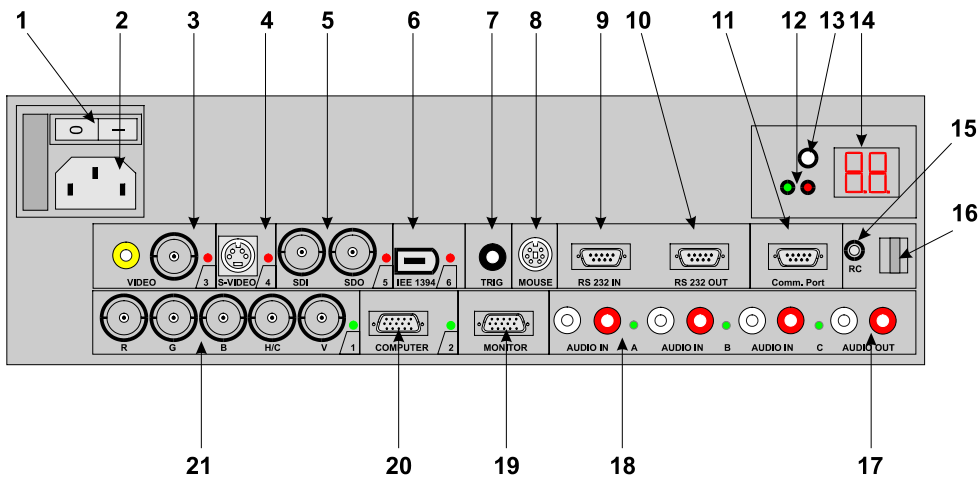
1	Power switch	1 = on, 0 = off
2	Power input	autoranging from 100VAC to 240VAC
3	Video input	1 cinch or 1 BNC connector, no loop through
4	S-Video	4-pin mini-DIN
5	SDI and SDO	2× BNC terminals, serial digital input and loop through output
6	IEE 13994	not yet implemented
7	TRIG	(mini-jack) output voltage of 5V when projector is on
8	Mouse	(DIN 13) mouse output to be connected to the mouse input of a computer. The computer can now be controlled via the Executive Remote Control Unit
9	RS232 IN	(D9), to allow communication with external computer, e. g. IBM PC or compatible, MAC ..
10	RS232 OUT	(D9), used to connect to next projector, RS232 IN plug
11	Communication port	(D9), allows communication with the 800 peripherals

12	IR-Acknowledged	IR-Signals are recognized
	IR-Received	IR-Signals are received but not recognized by the projector
13	Projector mode indication	indicates the status of the projector Light off:　　power switch is not pressed Red light:　　power switch is pressed, projector in standby mode Green light:　projector in operational mode
14	Diagnostics code	a)　　source number b)　　error code: a two digit error code is displayed
15	Remote	(mini-jack), remote input for wired remote control
16	IR-receiver	Receiver for control signals transmitted from the RCU
17	Audio output	
18	Audio input	3 audio inputs. Each audio input can be associated with arbitrary input
19	Monitor output	the monitor of your computer can be connected to this output if your computer is connected to the computer input
20	Computer input	
21	5-cable input	can be software switched between Video, S-Video, RGB analog or Component Video

4.3 Control Panel Terminology

The projector can be controlled by the local **keypad** or by the remote control unit (**RCU**)

4.3.1 Local keypad

The local **keypad** [2] is located on the front of the projector

(explanation see table 4.1)
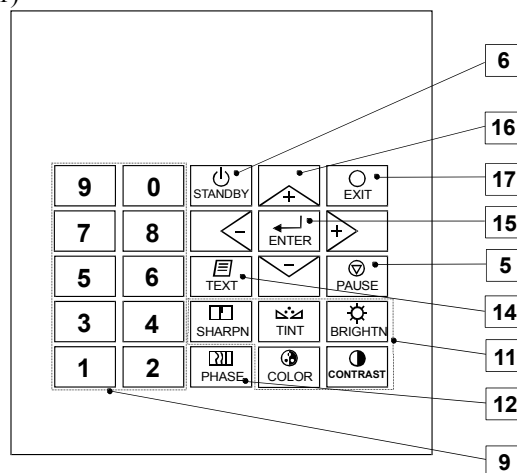
Figure 4-2
The local keypad

4.3.2 Remote control

This remote control unit (**RCU**) includes a battery powered infrared (IR) transmitter that allows the user to control the projector remotely.
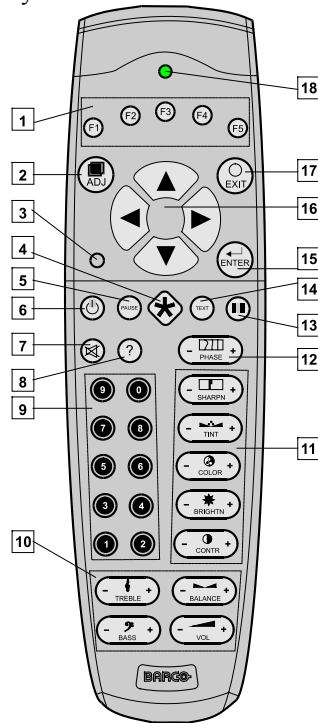
Figure 4-3
IR Remote Control Unit (RCU)

This remote control is used for source selection, control, adaptation and set up. It includes automatic storing of the picture controls (brightness, sharpness ...) and the settings.

Other functions of the remote control are:

▸ switching between standby and operational mode

▸ switching to "pause" (blank picture, full power for immediate restarting)

▸ direct access to all connected sources.

4.3.3 Terminology of keypad and RCU controls

1	Function keys	have no function for this projector
2	ADJ	ADJUST key, to enter or exit the adjustment mode.
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	Selection key	to direct access the zoom/focus/shift functions.
5	PAUSE	to stop projection for a short time, press 'PAUSE'. The image disappears but full power is retained for immediate restarting.
6	Standby	stand by 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 Stand-by.* *When the projector is running and you want to go to stand-by, press the stand-by key for 2 seconds until the message 'Saving data, please wait' is displayed. Do not press any longer on the stand-by key otherwise the projector will restart.*
7	Mute	to interrupt the sound reproduction.
8	Help	on line help information (not yet available)
9	Digit buttons	direct input selection.
10	Audio controls	use these buttons to obtain the desired sound level
11	Picture controls	use these buttons to obtain the desired picture analog level
12	PHASE	used to remove the instability of the image.
13	Freeze	press to freeze the projected image.
14	TEXT	when adjusting one of the image, e.g. controls during a meeting, the displayed bar scale can be removed by pressing 'TEXT' key first. To re-display the bar scale on the screen, press 'TEXT' key again.
15	ENTER	to start up the adjustment mode or to confirm an adjustment or selection in the adjustment mode.
16	Cursor Keys (**on RCU**) or '' and '-' keys (cursor keys) on the local **keypad**	to make menu selections when in the adjustment mode or to zoom/focus when the direct access is active. Comparison between the cursor keys and the use of the '+' and '-' keys on the local keypad **RCU** — **local keypad** cursor key up — '+' key up cursor key down — '-' key down cursor key right — '+' key right cursor key left — '-' key left Use the '+' and '-' keys (cursor keys) to increase or decrease the analog level of the image controls when they are first selected.
17	EXIT	to leave the adjustment mode or to scroll upwards when in the adjustment mode.
18	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)

5 Connections

This chapter explains the various interfaces of CYCLOPS.

5.1 Power connection

5.1.1 AC Power (mains) cord connection
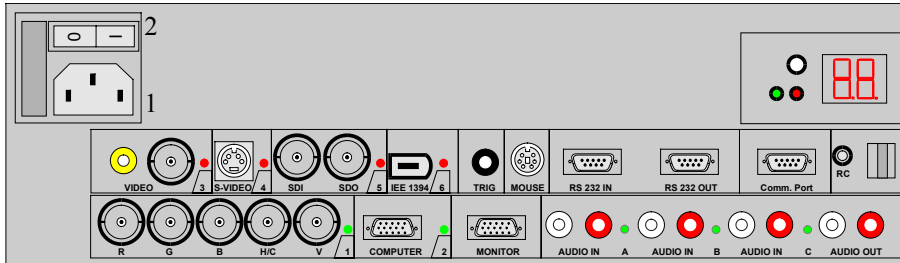
▶ Use the supplied power cord to connect your projector to the wall outlet.

▶ Plug the female power connector into the male connector [1] at the control panel.

The power input is auto-ranging from 95 to 230 VAC.

5.1.2 Fuses

For continued protection against fire hazard:
- refer replacement to qualified service personnel
- ask to replace with the same type of fuse.

Fuse type : T10 AH/250V

5.1.3 Switching on

Use the **power** switch [2] to switch on. When **'0'** is visible, the projector is switched off. When **'1'** is visible, the projector is switched on.

When switching on with the **power** switch, the projector starts in the **standby mode**. The projector mode indication lamp is red.

5.1.4 Image projection

To start image projection:

▶ press the **'Stand by'** button once on the local keypad or on the remote control. The **projector mode indication lamp** will be green.

▶ press a digit button to select an input source. The **projector mode indication lamp** will be green.

5.1.5 Lamp Run Time

The operation time of the lamp is 8000 hours. The total hours of operations are counted and can be displayed on the screen.

The total lifetime of the lamp for a safe operation at high and constant brightness is about 8000 hours. Always replace with a same type of lamp

5.1.6 Switching to Stand-by

When the projector is running and you want to go to stand-by:

▸ Press the **STANDBY** key for 2 seconds until the message **'Saving data, please wai**t' is displayed. Do not press any longer on the **standby** key otherwise the projector will restart.

5.1.7 Switching Off

To switch off:

▸ Switch off the voltage of the 24V interface or press **STANDBY** key for 2 seconds. When the message **'Saving data, please wait'** is displayed, do not press any longer on the standby key otherwise the projector will restart.

▸ Let cool down the projector at least 10 min.

▸ Switch off the projector with the **power** switch.

> ⚠ When switching to standby, it is possible to restart within the first 5sec. When not restarted within these first 5 sec., you have to wait one minute for being able to re-start again. During the period when restarting is disabled the LED display will show a jumping square with a dash. When restarting is enabled again, two dashes will be displayed to indicate that the projector can be restarted.

5.1.8 Input Connections

The projector has multiple input connections for all common RGB and video sources. The input can be selected either manually or automatically. When 'automatic' is selected in the **Input slots menu,** by starting up the projector, it searches for an input source by scanning the inputs one by one. If only one source is found, this source will be projected. If different sources are found, the priority is as follows

input facilities	priority of automatic input selection
Video	1
S-Video	2
5-cable input	3
Computer	4
Serial digital input	never automatically selected
IEEE 1394 (not yet active)	never automatically selected

> ⚠ When a RCVDS is connected to the projector, the '**Automatic**' selection is disabled.

5.1.9 Set up of the input selection:

  ‣ Press **ENTER** to start up the adjustment mode.

  ‣ Press the cursor key **up** or **down** to select **'Installation'**.

  ‣ Press **ENTER** to display the **Installation menu**.

  ‣ Press the cursor key **up** or **down** to select **'Input Slots'**.

  ‣ Press **ENTER** to display the **Input slots menu**.
    In the Input slots menu the available input sources are marked with **x**

  ‣ Press the cursor key **up** or **down** to select **'Input Slots'**.

  ‣ Press **ENTER** to toggle between [**Manual**] or [**Automatic**].

  ‣ Press **EXIT** several times to leave the adjustment mode.

Use of a RCVDS05 or VS05 :
When using a RCVDS05, it is recommended to use a 5-cable output module in the RCVDS. The outputs of this module have to be connected to the 5 cable input (slot 1) of the projector.
To switch the projector in the 5-cable mode see chapter **9 Installation Mode**.

5.1.10 5-cable Input Slot (slot 1)

Slot 1 has 5 BNC input terminals.

The following signals can be connected to these BNC connectors:

Connector name	R	G	B	H	V
Input signal					
RGBHV	R	G	B	H	V
RGBS	R	G	B	S	-
RGsB	R	Gs	B	-	-
Composite Video	-	Video	-	-	-
Super Video	-	Y	-	-	C
Component Video - SS	R-Y	Y	B-Y	S	-
Component Video - SOY	R-Y	Ys	B-Y	-	-

Slot 1 selection

To select slot 1:

  ‣ Press the digit button **1** on the RCU or the local keypad.

Configuration of the 5-cable input

The configuration has to be done on the **'Input slot'** menu.

To change the signal format:

▸ Press **ADJUST** or **ENTER** to start up the **Adjustment** mode.

▸ Push the cursor key **up** or **down** to select **Installation**

▸ Press **ENTER**.

▸ Press the cursor key **up** or **down** to select **'Input Slots'**

▸ Press **ENTER**. The internal system will scan the inputs and displays the result in the **'Input Slots' menu**.

▸ Push the cursor key **up** or **down** to select the first slot.

▸ Press **ENTER** key to toggle the input signal priority.

Possible indication:

RGB [HS&VS]	RGB analog signals, separate sync is horizontal and vertical sync.
RGB CS	RGB analog signals, separate sync is composite sync.
RGB CV	RGB analog signals, separate sync is composite video or tri-level sync.
RGB-SOG	RGB analog signals, sync on green is composite sync.
COMPONENT VIDEO - CS	separate sync is composite sync.
COMPONENT VIDEO	component video with composite sync on Y or composite tri-level sync on Y.
VIDEO	
S-VIDEO	

When using an RCVDS 05 with a 5 cable output module, connect these 5 cables to this 5-cable input slot (slot1) of the projector.

All sources of the RCVDS can now be accepted by the projector.

5.1.11 Computer input/Monitor output

‣ Connect the output of the graphical card of the computer to the **computer input** of the projector (connection < 60 cm) or insert an interface between the output of the computer and the input of the projector.

‣ Connect the monitor of the computer to the monitor output of the projector.

‣ This monitor output is only available when the computer input is used as input.

Pin configuration of the D15 connector:

1	RED
2	GREEN
3	BLUE
4	loop through to monitor
5	ground
6	ground
7	ground
8	ground
9	loop through to monitor
10	ground
11	loop through to monitor
12	loop through to monitor
13	Horizontal/composite sync
14	Vertical sync
15	loop through to monitor

Slot 2 selection:

‣ Press the digit button **2** on the **RCU** or the local **keypad**.

5.1.12 Video Input

Input signal:

Composite video signals from a VCR, OFF air signal decoder, etc...

1 x BNC or cinch 1.0Vpp ± 3 dB

No loop through.

Slot 3 selection:

Press the digit button **3** on the **RCU** or the local **keypad**.

5.1.13 S-Video Input

Input signal:

Separate Y-luma/C-chroma signals for higher quality playback of Super VHS-signals.

Pin configuration mini DIN plug:

1	ground luminance
2	ground chrominance
3	luminance 1.0Vpp ± 3 dB
4	chrominance 282 mVpp ± 3 dB

Slot 4 selection:

Press the digit button **4** on the **RCU** or the local **keypad**.

5.1.14 Serial Digital Input / Serial Digital Output

Full compatibility with digital Betacam, or digital video sources.

This avoids the need for analog processing anywhere in the video production chain and guarantees the ultimate image quality.

An active loop through of the SDI input signal is provided for monitoring or for double or triple stacking applications.

connections:

1 x BNC input and 1 x BNC output.

The input is always 75 Ω terminated. The output impedance of the SDO is 75 Ω.

Slot 5 selection:

Press the digit button **5** on the **RCU** or the local **keypad**.

> When a RCVDS05 is connected to the projector, the SDI input is available by keying in 85 on the **RCU**.

5.1.15 IEEE 1394 Input

Input not yet implemented.

5.1.16 Communication Connections

The following communication connections are available:

‣ RS232 in / RS232 out.

‣ Comm port for communication with peripheral (switchable between PPM and RC5)

‣ RC for remote cable connection with the RCU.

‣ MOUSE to control a PC with the projector remote control.

‣ TRIG: output voltage to control another device.

5.1.17 RS232 in / RS232 out

To connect a Computer, e.g. IBM PC (or compatible), Apple Macintosh to the RS 232 input of the projector to allow communicate between the computer and the projector.

Applications:

remote control	easy adjustment of projector via IBM PC (or compatible) or MAC connection allow storage of multiple projector configurations and set ups. wide range of control possibilities. address range from 0 to 255.
data communications	sending data to the projector or copying the data from the projector to a hard memory device (hard disc, floppy, etc.).

Set up of the Baud Rate for Communication with a Computer:

see "change Baudrate PC" in chapter **10 Service Mode**.

5.1.18 Communication port for communication with peripherals

This port can be configured to accept PPM or RC5 coded signals.

To change the port configuration see "800 Peripherals" in chapter **9 Installation Mode**.

Connecting a RCVDS 05 to the projector:

‣ Up to 20 inputs with the RCVDS 05 and 90 inputs when RCVDS's are linked via the expansion module.

‣ Serial communication with the projector.

‣ Remote control buttons on the RCVDS to control the projector (source selection and analog settings).

‣ The selected source number will be displayed on a 2 digit display and the selected input module will be indicated with a LED on the rear.

For more information about the use of the RCVDS 05, consult the owner's manual of the RCVDS05, see **12.4.3 User's Manuals**.

Connecting a VS05 to the projector:

The VS05 (see **12.4.2 Optional Parts** can switch up to 5 Composite Video sources, 3 Super Video sources and 1 RGB analog or component video source to the projector. In addition, the audio signal proper to the source, can be switched to an audio amplifier or the audio input of the projector.

For more information about the use of the VS05, consult the VS05 owner's manual, see **12.4.3 User's Manuals**.

5.1.19 TRIG Output

5 V output voltage to trigger an external device (max. 10mA).

This voltage is available when the projector is on.

5.1.20 MOUSE

Mouse output to be connected to the mouse input of a computer. With the **Executive Remote Control** (see 12.4.2 Optional Parts), the computer can now be controlled via the projector. All normal mouse functions except the 'drag and drop' function are available. For more information about the mouse functions, consult the owner's manual of the Executive Remote Control.

5.1.21 Audio Connections

Three audio inputs and one audio output are available. Each audio input can be associated with an input source using the control software of the projector, e.g. source 1 can be locked with audio input B.

Locking an audio input to a source input :

‣ Press **ENTER** to start up the adjustment mode.

‣ Press the cursor key **up** or **down** to select **'Random Access'**.

‣ Press **ENTER** to display the **Random Access menu**.

‣ Press the cursor key **up** or **down** to select **'Audio Tuning'**.

‣ Press **ENTER** to display the **Audio Tuning menu**.

‣ Press the cursor key **up** or **down** to select **'Video-Audio lock'**.

‣ Press the cursor key **up** or **down** to select the desired source input.

‣ Press **ENTER** to toggle between [A], [B] or [C].

‣ Press several times **EXIT** or **ADJUST** to return to the operational mode.

See also chapter 8.2.10 Video - Audio lock

6 Controlling

The projector can be controlled with

▶ the **RCU**

▶ the hardwired **RCU** (cable is not included)

▶ the local **keypad**

Controlling the projector with the **RCU** and the hardwired **RCU** is equal.

6.1 RCU used in a hardwired configuration

Connections:

▸ Plug one end of the remote cable in the connector on the bottom of the **RCU**

▸ Plug the second side in the connector in the front panel of the projector labelled **'RC'**.

6.2 How to use the RCU?

Point the front of the **RCU** directly at the screen.

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

6.3 Projector address

The projector's address may be set to any value between 0 and 255 (see 'Change projector address' in chapter 'Service mode). When the address is set, the projector can be controlled now by the **RCU** for addresses between 0 and 9.

The projector can also be controlled by 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 an address of '0' regardless of what address is set in the projector itself.

6.3.1 Using the RCU

The **RCU** is default programmed with address 0, **'zero address'**. With that **'zero address'** programmed into the RCU, every projector, without exception will listen to the commands given by this **RCU**. If it is necessary to control a specific projector, than 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**.

6.3.2 Displaying a Projector Address

Press the **ADDRESS** key (recessed key on the **RCU**) with a pencil. The projector's address will be displayed in a 'Text box'. This text box disappears after a few seconds.

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 003, then press "3" digit button on the **RCU** to set the **RCU**'s address to match the projector's address. Do not press 003 digits. This will address the remote control to '0' and control all projectors in the room.

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

6.3.3 How to Program an Address into the RCU?

Press the **ADDRESS** key (recessed key on the **RCU**) with a pencil and enter the address with the digit buttons within 5 seconds after pushing the **address** key. That address can be any digit between 0 and 9.

6.3.4 Picture Controls with Direct Access.

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 **TEXT** 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 control stick on the **RCU** is pressed or the **+** or **-** buttons on the local **keypad**.

Brightness Control

A correct **'brightness'** setting is important for good image reproduction.

Use the **+** button for a higher brightness.

Use the **-** button for a lower brightness.

Contrast Control

A correct **'contrast'** setting is important for good image reproduction.

Adjust the contrast to the level you prefer, according to room lighting conditions.

Use the **+** button for a higher contrast.

Use the **-** button for lower contrast.

Color Saturation

Color saturation is only active for Video and S-Video. Adjust the color intensity of the picture.

Use the **+** button for richer colors.

Use the **-** button for lighter colors.

Tint Control

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.

Sharpness Control

Use the **+** button for a sharper picture.

Use the **-** button for a softer picture.

Phase Control

Use the control disc to adjust the phase.

Freez key

Press **Freez** to freeze the displayed image.

6.3.5 Sound controls with direct access

When a **sound** control is pressed, a text box with a bar scale, icon and function name of the control, e.g. **'volume**...' appears on the screen (only if **TEXT** is **ON**). The length of the bar scale indicates the current memorized setting for this source. The bar scale changes as the **+** or **-** buttons of the control are pressed.

The picture controls can only be adjusted with the RCU.

Volume Control

Volume control adjusts the volume.

Use the **+** button for a higher volume.

Use the **-** button for a lower volume.

Bass Control

Bass control adjusts the bass level (low tones).

Use the **+** button for more low tones.

Use the **-** button for less low tones.

Treble Control

Treble control adjusts the treble level (high tones).

Use the **+** button for more high tones.

Use the **-** button for less high tones.

Balance Control

Is only effective if a external amplifier with loudspeakers is connected to the audio output.

The **balance** control adjust the sound level between the left and the right box.

Use the **+** button for a higher sound level on the right box than on the left one.

Use the **-** button for a higher sound level on the left box than on the right one.

The Pause key

When the **Pause** key is pressed, the image projection is stopped, a blue screen will be displayed and the projector remains with full power for immediate restart. The sound is not interrupted.

The display on front of the projector will show a **P.**

To restart the image:

▶ press **Pause** key

▶ press **EXIT** key or

▶ select a source number.

The Selection key

When the **Selection** key is pressed, the **zoom/focus/shift menu** will be displayed immediately.

To focus or zoom the image:

▶ Push the **up** or **down** key to zoom and **left** or **right** key to focus the image.

▶ When finished, press **EXIT** to return or **ENTER** to contiune to the shift adjustment

To shift the image:

▶ Press **ENTER** to switch to the **shift menu**

▶ Push the **up** or **down** key to shift the image up or down and **left** or **right** key to shift the image left or right.

▶ When finished, press **EXIT** to return or **ENTER** to continue to zoom/focus

7 Start Up of the Adjustment Mode

All source parameters, picture and audio tuning, and geometry are made while in the **'Adjustment Mode'**. Press the **ADJUST** or **ENTER** key to enter the **'Adjustment mode'**.

7.1 Adjustment mode

You are now in the **'Adjustment Mode'**.

▸ The cursor key (**RCU**) or **'+** or **'-'** keys (local **keypad**) are used to make **menu** selections and also for adjustments.

▸ The **ENTER** and **EXIT** keys are used to move forward and backward through the **menu** structure.

▸ The **ADJUST** key can be used to terminate the adjustment mode while any path selection menu is displayed.

There are 3 possible paths to follow once in the **Adjustment Mode**. They are:

▸ **Installation**
Installation should be selected if a new input module is installed or a new source is connected to an existing input module. Also when the projector is relocated in a new configuration.

▸ **Random Access**
Random Access should be selected to set up a new source.

▸ **Service**
Service should be selected if the user intends to change general settings such as password, language, address, etc.or some service actions as reset lamp run time, panel adjustments, etc. or get set-up information.

Some items in the **Adjustment** mode are password protected. While selecting such an item, the projector asks to enter your password (Password protection is only available when the password strap on the controller module is **ON**, call an authorized service center to change the position of the password strap).

7.1.1 Password

The password contains 4 digits.

▸ Enter the digits with the numeric keys.

Example: 2 3 1 9

The first digit position is highlighted. Enter with the numeric keys. The highlighted square jumps to the next position. Continue until all 4 digits are filled in.

When your password is correct, you gain access to the selected item.

When your password is wrong. the error message "Invalid password" is displayed on the screen. Press **EXIT** to continue and to return to the **Service menu**.

The factory programmed password is 0 0 0 0

Once the password is correctly entered, all other password protected items are accessible without re-entering the password.

When re-entering the **Adjustment** mode, it will be necessary to enter the password again when selecting a password protected item.

For setting up your own password see chapter **10.2 Change Password**

8 Random Access Adjustment Mode

To start up the Random Access Adjustment Mode:

▸ push the cursor key **up** or **down** to highlight **'Random Access'** and then press **ENTER**

The **Random Access menu** comprises four submenus each of which gives access to the various settings and commands related to the submenu:

main menu	submenu	commands
Random Access Adjustment Mode	**File Service**	load edit rename copy delete options
	Picture Tuning	cti (color transient improvement) color temperature gamma decoding color depth black color input balance
	Audio Tuning	volume balance bass treble mute fade mode stereo/mono video – audio lock
	Geometry	shift size side keystone blanking aspect ratio options

8.1 File Service

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.

File loading can be done automatically **8.1.6 File Options**

Files with a ~ in front of the file name are temporary files. These files will be deleted when switching to another source.

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

▸ Push the cursor key **up** or **down** to highlight **'File Service'**.

▸ Press **ENTER** to select.

▸ The **File service menu** will be displayed.

▸ **EXIT** returns to the **Path selection menu**.

▸ **ADJUST** returns to operational mode.

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 to a new file
Delete	deleting an existing file
Options	way of sorting the files & automatic file loading

File Annotation: xxxxxxxx.xxx   x   xxxxXxxxxi

xxxxxxxx.	xxx	x	xxxxXxxxx	i
Base name, 8 characters	File extension, first character is C (custom made files) or S (standard files). The second and third character is used for a following number (file index); file index for custom files: 00-63	Source number	Active pixel rating	i or blank: i = interlaced, blank = not interlaced

8.1.1 Load File

‣ **Push the cursor key up or down to highlight 'Load'.**

‣ **Press ENTER to select.**

‣ **The Load menu displays the corresponding files depending on the installed filter. This filter can be Fit or All.**

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 distinction of ± 300 ns, if nothing is found within this small area, the projector continues searching until it finds something.)

To change the filter :

‣ Push the cursor key left or right to highlight 'filter list'.

‣ Press ENTER to toggle the annotation between brackets.

To load a file:

‣ Push the cursor key **up** or **down** to select the best fitting file.

‣ Press **ENTER** to select.
A confirm **Load file menu** will be displayed with the newly created file and the one on which the new file is based on.

‣ Press **ENTER** to confirm the new creation or **EXIT** to return to the load file menu.

When scrolling through the files, the image will be adapted according to the settings of the selected file (online adaptation).

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.

During a load file, the actual active file is displayed next to the indication **'Active file'**.

8.1.2 Edit File

The **Edit file menu** makes it possible to change the settings of the file according to the real settings of the connected source. Consult the source specification before entering the data.

To start up the **EDIT menu**:

▸ Push the cursor key **up** or **down** to highlight **'Edit'**.

▸ Press **ENTER** to select.

▸ The **Edit file adaptation menu** will be displayed.

▸ Select the file which must be edited (mostly the active file).

▸ Press **ENTER**.
The file name will be displayed in the upper right corner.

The following items can be adjusted:

▸ Total quantity horizontal pixels

▸ Active quantity horizontal pixels

▸ Horizontal start (in pixels)

▸ Horizontal period (in µs) (is automatically adapted during the installation of a file with **LOAD**)

▸ Total vertical lines (is automatically adapted during the installation of a file with **LOAD**)

▸ Active vertical lines

▸ Vertical start (in lines)

▸ Interlaced: toggle on/off (is automatically set to its correct position during the installation of a file with **LOAD**)

All settings can individually be changed by pushing the cursor key **up** or **down** to select an item.

The color of the selected item will change. There are three methods to change the value.

method 1:

▸ press **ENTER** to activate the digits

▸ enter directly with the numeric keys on the **RCU** or local **keypad** the new value

method 2:

▸ Press **ENTER** to activate the digits

▸ Push the cursor key **right** or **left** to select the changing digit.

▸ Push the cursor key **up** or **down** to scroll to desired digit.

▸ When finished press **ENTER** to confirm.

method 3

▸ Counting up or down by pushing the cursor key **right** or **left**.

How to find the correct values for the displayed item?

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

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

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).

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 gives the number of pixels between the beginning of the input signal and the start of the video information in the signal.

The **Horizontal Period** is already filled in with the correct value of the active file.

The **Vertical Total Lines** are already filled when an active file is selected to be edited.

Active Lines is the 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 gives the number of lines between the start of the input signal and start of the image on the screen.

Interlaced [On] or [Off]: this selection is automatically filled when active file has to be edited. If the image is wrong due to mismeasurement, use the **ENTER** key to toggle between [On] and [Off]. (for interlaced images, one frame contains two fields).

Read AMDS (AMDS = automatic mode detection & synchronization)**:** During the installation of a file with **LOAD**, the system automatically measured the horizontal period, the total vertical lines and the interlaced mode. When selecting **Read AMDS**, the system re-measures the above indicated items.

Options

▸ Source Number
The source number of a non-active source can be changed to any other source number. This makes it possible to create a file for future source numbers.

▸ Clamp Position
Clamping determines the black level of the signal. The clamp pulse can be related to the leading or the trailing edge of the sync pulse. Use the **ENTER** key to toggle between [leading] and [trailing].

▸ 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. Change the value by pushing the cursor key **right** or **left**.

▸ Clamp Width
The width of the clamp pulse. Can be any value between 0 and 255. Change the value by pushing the cursor key **left** or **right**.

▸ Field Polarity
The field polarity function is used for interlaced images. Both rasters of the image could be shifted in a wrong way (double lines are visible in the image). This can be corrected by forcing the field polarity to [**neg**] or [**pos**]. Use the **ENTER** key to toggle between [**pos**] and [**neg**].

▶ Field Select: Default [**both**]
The field select is only used for interlaced images. One frame of an interlaced image contains two fields, an even and an odd field. The choice exists to project [**both**] fields on the screen or only the [**even**] or [**odd**] field. This can be useful for 3D projection. Use the **ENTER** key to toggle between [**both**], [**even**] and [**odd**].

▶ Vertical Refresh [**sync**/**async**]
The way of updating the image information on the LCD panels. Not available for PAL-NTSC-SECAM sources. This option will be displayed in gray.

* For sources with a vertical frequency up to 60 Hz: the vertical refresh rate is the same as the vertical frequency of the incoming source. This is a necessity to project moving images without 'motion artifacts'. For stationary images with a vertical frequency up to 60 Hz it is still possible to use asynchronous refresh. When loading Pal, Secam, NTSC-files the synchronous mode is default, for all other sources below 60 Hz asynchronous mode is default.

* For sources with a vertical frequency higher that 60 Hz: the vertical refresh is different than the vertical frequency of the incoming source. Synchronous refresh cannot be used.

▶ Vertical Sync Polarity [**leading**] or [**trailing**]
The vertical refresh can be synchronized with the leading sync edge or trailing sync edge. Default on [**leading**].
 Toggling to [**trailing**] is only necessary for special applications where the trailing edge of the sync signal has to be taken as a reference. Use the **ENTER** key to toggle between [**leading**] or [**trailing**]

Press **EXIT** to leave the **Edit File Option menu.**

▶ A **'Confirm Edit File'** menu will be displayed.

▶ Press **ENTER** to confirm and to save the new settings or **EXIT** to return without saving the new entered settings.

8.1.3 Rename

To change the name of a selected file:

▶ Push the cursor key **up** or **down** to highlight **'Rename'**.

▶ Press **ENTER**.

▶ The **Rename selection menu** will be displayed.

▶ Push the cursor key **up** or **down** to select a file name.

▶ Press **ENTER** to select.

The **Rename menu** will be displayed with the selected file name already filled in the **'From file name:'** area and in the **'To file name:'** area.
The first character is highlighted.

▶ Push the cursor key **left** or **right** to select the desired character.

▶ Change that character by pushing the cursor key **up** or **down**. Numeric characters can be entered directly with numeric keys on the **RCU**.

▶ Press **ENTER** to confirm. The renamed file is entered in the list of files.

▶ Press **EXIT** to return to the **Rename menu selection**. No changes are made.

8.1.4 Copy

To copy a selected file into a new file:

▸ Push the cursor key **up** or **down** to highlight **'Copy'**.

▸ Press **ENTER**. The **Copy selection menu** will be displayed.

▸ Push the cursor key **up** or **down** to select a file name.

▸ Press **ENTER** to select.

The **Copy 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 is highlighted.

▸ Push the cursor key **left** or **right** to select the desired character.

▸ Change that character by pushing the cursor key **up** or **down**. Numeric characters can be entered directly with numeric keys on the **RCU**.

▸ Press **ENTER** to confirm. The renamed file is entered in the list of files.

▸ Press **EXIT** to return to the **Copy menu selection**. No changes are made.

8.1.5 Delete

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

▸ Push the cursor key **up** or **down** to highlight **'Delete'**.

▸ Press **ENTER**.

▸ The **delete selection menu** will be displayed.

▸ Push the cursor key **up** or **down** to select a file name.

▸ Press **ENTER** to select.
   If [**All**] is selected, your password has to be entered before all files will be deleted.

▸ A **confirmation menu** "Delete file 'file name'?" is displayed. When you want to delete the file, press **ENTER**. If you do not want to delete the file, press **EXIT**.

The active file cannot be deleted.

8.1.6 File Options

▸ Push the cursor key **up** or **down** to highlight **'File Options'**.

▸ Press **ENTER**.
The **option selection menu** will be displayed.

File Sort

▸ Press **ENTER** to toggle between [**name**] and [**index**]
[**name**]: The files in the file list will be sorted on the file name.
[**index**]: The files in the file list will be sorted on the file extension.

File Load

▸ Press **ENTER** to toggle between [**Automatic**] and [**Manual**].
[**Automatic**]: the best fitting file will be loaded automatically when a source is selected. It is still possible to change that file by another file using the **Load** function
[**Manual**]: no file will be loaded when a source is selected. The **Load** function in **File Service** has to be used to load a file.

Serial file load

▸ Press **ENTER** to toggle between [**Off**] and [**ON**].

8.2 Picture Tuning

▸ Push the cursor key **up** or **down** to highlight **'Picture Tuning'**.

▸ Press **ENTER** to select. The **Picture Tuning menu** will be displayed.

CTI ON/OFF	n.a.	to improve the transition from one color to another
color temperature		to select a color temperature
gamma		to set the gamma of the projector image
decoding EBU/IRE	n.a.	decoding of NTSC video signals via IRE or EBU standard
color depth		to increase the color contrast for all video and data sources
input balance	n.a	to adjust brightness and contrast
Black color		Modiefies the color of the black image for color matching between projectors.

8.2.1 Color Temperature

▸ Push the cursor key **up** or **down** to highlight **'Color Temperature'**.

▸ Press **ENTER** to select.

▸ The **color temperature selection menu** will be displayed.

The following selections are are possible :

name	related temperature
Projector white	
Broadcast	3200 K
Film	5400 K
Video	6500 K
Computer	9300 K
Custom balance	

Push the cursor key **up** or **down** to select a fixed color temperature or custom balance.

Projector white will provide maximum projector light output.

The calibrated **'Broadcast'**, **'Film'**, **'Video'** and **'Computer'** presets will provide optimum color tracking.

Custom balance allows the user to set his own preferred color temperature.

To adjust **Custom Balance**, handle as follows:

▸ Push the cursor key **up** or **down** to highlight **'Custom Balance'**.

▸ Press **ENTER** to select.

▸ Push the cursor key **up** or **down** to adjust red and push the cursor key left or right to adjust blue (range 0 to 2.5) in comparison with the green color (value 1).

8.2.2 Gamma

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

To change the gamma value :

▸ Push the cursor key **up** or **down** to highlight **'Gamma'**.

▸ Press **ENTER** to select.

▸ Change the **gamma** value by pushing the cursor key left or right until the desired value is reached.

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

8.2.3 Color Depth

Increases color saturation of dark colors

To change the color depth value:

▶ Push the cursor key **up** or **down** to highlight **'Color Depth'**.

▶ Press **ENTER** to select.

▶ Change the value by pushing the cursor key **left** or **right** until the desired color saturation is reached: Adjustment range: 0 ... 8; default: 4

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

8.2.4 Black Color

Modiefies the color of the black image for color matching between projectors.

To change the black color :

▶ Push the cursor key **up** or **down** to highlight **'Black Color'.**

▶ Press **ENTER** to select.

▶ Change the color of the black image by adding a certain amount of Red (R), Green (g) or Blue (B)

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

⚠️ **Deviation from R=0, G=0, B=0 will result in a lower contrast ratio for the projector.**

8.2.5 Audio Tuning

▶ Push the cursor key **up** or **down** to highlight **'Audio Tuning'**.

▶ Press **ENTER** to select. The **Audio Tuning menu** will be displayed.

The following items are available :

Volume	to adjust volume
Balance	to adjust balance
Bass	to adjust bass
Treble	to adjust treble
Mute	to stop the sound reproduction
Fade	to determine where the sound signals will be reproduced
Mode	Sound reproduction can be done in stereo or mono
Video - Audio lock	to lock an input source to an audio input

8.2.6 Volume, Balance, Bass and Treble

When a sound control is selected by highlighting the item with the cursor key, a text box with a bar scale, icon and function name of the control, e.g. **'Volume'** appears on the screen (only when text is **ON**). The length of the bar scale indicates the current memory setting for this source. For more information about the sound controls, see **6.3.5 Sound controls with direct access**

8.2.7 Mute

To stop the sound reproduction.

▸ Push the cursor key **up** or **down** to highlight **'Mute'**.

▸ Press **ENTER** to toggle between [**on**] or [**off**]

8.2.8 Fade

Determine where the sound signals will be reproduced, internally or externally. Adjust the fade as follows:

▸ Push the cursor key **up** or **down** to highlight **'Fade'**.

▸ Press **ENTER** to select.

▸ Adjust the desired **fade** level.

▸ The **fade** can be adjusted between -15 and 15.

Fade on -15: no sound reproduction on the external loudspeakers, max on the internal loudspeaker with the same volume level as adjusted with the **volume** control.

Fade on 15: no sound reproduction on the internal loudspeakers but max on the external loud-speakers with the same volume level as adjusted with the **volume** control.

8.2.9 Mode [stereo]/[mono]

The sound reproduction can be done in mono or stereo. To install the mode:

▸ Push the cursor key **up** or **down** to highlight **'Mode'**.

▸ Press **ENTER** to toggle between [**stereo**] or [**mono**].

8.2.10 Video - Audio lock

To lock an input source to an audio input, follow the next steps :

▸ Push the cursor key **up** or **down** to highlight the first input source.

▸ Press **ENTER** to toggle the associated audio input between [**A**], [**B**] or [**C**].

▸ Push the cursor key **left** or **right** to highlight another input source.

▸ Press **ENTER** to toggle between [**A**], [**B**] or [**C**].

▸ Continue for the other inputs in the same way.

8.3 Geometry

To start up the **Geometry** functions:

▸ Push the cursor key **up** or **down** to highlight **'Geometry'**.

▸ Press **ENTER** to select.

▸ The **geometry menu** will be displayed.

The following adjustments are possible:

horizontal and vertical image shift.	to shift the image in a horizontal or vertical direction
horizontal and vertical image size	to adjust the size in a horizontal or vertical direction
side keystone	to align the image (only necessary if the projector is mounted at a non standard projection angle).
blanking	to frame the projected image on to the screen
aspect ratio	to force the projector in a typical aspect ratio
options	to change the geometry options

The following ways are possible to adjust a **geometry** function:

▸ using the cursor key to adjust or

▸ entering the value with the digit keys. Therefore, press **ENTER** to select the indicated value and enter the desired value with the digit keys. Press **ENTER** to confirm the entered value.

8.3.1 Shift

The image can be shifted in a horizontal or vertical direction.

To start up the shift action:

▸ Push the cursor key **up** or **down** to highlight **'Shift'**.

▸ Press **ENTER** to select.

▸ Push the cursor key **up** or **down** to shift the image in a vertical direction. Push the cursor key **left** or **right** to shift the image in a horizontal direction. The default value for the shift is 0.

Shifting in a vertical direction: when the shift value is positive, the image is shifted upwards, when the value is negative, the image is shifted downwards.

Shifting in a horizontal direction : when the shift value is positive, the image is shifted to the right, when the value is negative, the image is shifted to the left.

8.3.2 Size

The size 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.

To start up the size adjustment:

▸ Push the cursor key **up** or **down** to highlight **'Size'**.

▸ Press **ENTER** to select.

▸ Push the cursor key **up** or **down** to size the image in a vertical direction. Push the cursor key **left** or **right** to size the image in a horizontal direction.

8.3.3 Side Keystone

A side keystone adjustment is used to align the image if the projector is mounted at a non standard projection angle

To start up aligning the keystone

▸ Push the cursor key **up** or **down** to highlight **'Side Keystone'**.

▸ Press **ENTER** to select.

▸ Push the cursor key **left** or **right** 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 **left** cursor key. The number indication below the bar scale will be negative.

▸ When the lower part of the image is wider than the lower part of the image, push the **right** cursor key. The number indication below the bar scale will be positive.

8.3.4 Blanking

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

To adjust the **blanking**:

▸ Push the cursor key **up** or **down** to highlight **'Blanking'**.

▸ Press **ENTER** to display the blanking menu.

The following blanking corrections are possible :

▸ top blanking

▸ bottom blanking

▸ left blanking

▸ right blanking

8.3.5 Aspect Ratio [5:4]/[4:3]/[16:9]

To force the projector in a typical aspect ratio, e.g. projecting a 4:3 image in a 16:9 aspect ratio.

To install the desired aspect ratio:

▸ Push the cursor key **up** or **down** to highlight **'Aspect Ratio'**.

▸ Press **ENTER** to toggle between [**5:4**] or [**4:3**] or [**16:9**].

8.3.6 Options

To change the geometry options:

▶ Push the cursor key **up** or **down** to highlight **'Options'**.

▶ Press **ENTER** to display the **Geometry options menu**
The next question will be asked by the projector :
'Use the same side keystone correction for all files ? [**YES**] or [**NO**].
[**YES**]: the same **keystone** correction will be used for all installed files
[**NO**]: the **keystone** has to be adjusted file per file.

▶ Push the **ENTER** key to toggle between [**YES**] or [**NO**].

▶ Press **EXIT** to return to the **Geometry menu**.

9 Installation Mode

To start up the **Installation Mode**, push the cursor key **up** or **down** to highlight **'Installation Mode'** and then press **ENTER**.

The following items can be selected in the **Installation mode**:

Input slots	to set up the input priority
800 Peripheral	to select the type of output module used in the RCVDS05.
Configuration	to set up the projector position
OSD color	to change the color of the highlighted item.
Internal Patterns	
No signal	Background color can be black or blue
Lens	To adjust the lens
Menu position	To force the menu in the middle of the screen
Quick Access Keys	Function keys for direct access

9.1 Input Slots

The input configuration of the variable inputs is shown in the **input slots menu**. To view or to change the input configuration:

▸ Push the cursor key **up** or **down** to highlight **'Input Slots'**.

▸ Press **ENTER** to select.
The internal system will scan the input slots and displays the result in the **Input slots menu**.
The black indicated inputs are selectable and changeable. The gray indicated inputs are fix inputs and are not changeable.

indication in front of the digit	meaning
x	valid signal connected to the input.
-	no valid signal connected to the input.

indication in the source description	meaning
Video or **S-Video**	Video
	S-Video
RGB analog	RGB-CV:
	separate sync is composite video signal on H/C input
	RGB-HS&VS
	separate sync is horizontal and vertical sync
	RGB-CS
	separate sync is composite sync
	RGB-SOG
	sync on green
Component video	Component Video

If a RCVDS (switched on) or VS05 is connected to the projector, it will be also indicated on the **menu** by adding **+800 peripheral**. If no **800 peripheral indication** is made on the **menu**, there are still two possibilities :

▸ no RCVDS or VS05 connected or

▸ RCVDS is switched off.

When a **800 peripheral** is connected to the projector, the input slots are not accessible with the cursor key to toggle their function.

9.2 800 Peripheral

Output module selection

When a **RCVDS05** is connected to the projector, the type of output module of this **RCVDS05** has to be defined in the **800 peripheral menu**.

The type of output module can be:

▸ standard output module or

▸ 5 cable output module.

To define the output module:

▸ Push the cursor key **up** or **down** to highlight **'800 Peripheral'**.

▸ Press **ENTER** to select.

▸ Push the cursor key **up** or **down** to highlight **'Output module'**.

▸ Press **ENTER** to toggle between **'Standard'** or **'5-cable'**.

Infrared Communication

When a peripheral is connected to the **'Comm Port'**, the communication can be in PPM or RC5.

The type of communication can be set to:

▸ PPM

▸ RC5

To define the communication:

Push the cursor key **up** or **down** to highlight **'Infrared'**.

Press **ENTER** to select.

Press **ENTER** to toggle between [**PPM**] or [**RC5**].

9.3 Configuration

The configuration of the projector can be set up as follows:

▸ Push the cursor key **up** or **down** to highlight **'Configuration'**.

▸ Press **ENTER** to select.

▸ The **Configuration menu** will be displayed.
For more information, see **13.1 Faults**.

9.4 OSD color (On-Screen Display)

The highlighted items on the menus can be displayed in red, green or yellow.

To change this color setting:

▸ Push the cursor key **up** or **down** to highlight **'OSD color'**.

▸ Press **ENTER** to select.

▸ The **OSD color menu** will be displayed.

▸ Push the cursor key **up** or **down** to highlight a color.

▸ Press **ENTER** to select.

9.5 Internal Patterns

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

To select an internal pattern, handle as follow:

▸ Push the cursor key **up** or **down** to highlight **'Internal Patterns'**.

▸ Press **ENTER** to select.

▸ The **internal pattern menu** will be displayed.

▸ Push the cursor key **up** or **down** to highlight the **Internal Patterns**.

▸ Press **ENTER** to display the selected internal pattern.

The following patterns are available:

▸ Outline

▸ Hatch

▸ Color Bars

▸ Multiburst

▸ Checker Board

▸ Page Characters

▸ Alpha-numeric characters

▸ Character Sets

▸ Backgrounds

9.6 Lens Adjustments

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

The following items can ce adjusted

| Zoom/Focus |
| Shift |

When the **Selection** key is pressed, the **zoom/focus/shift menu** will be displayed immediately.

To focus the image:

▸ Push the **up** or **down** key to zoom and **left** or **right** key to focus the image.

▸ When finished, press **EXIT** to return or **ENTER** to continue to the shift adjustment

To shift the image:

▸ Press **ENTER** to switch to the **shift menu**

▸ Push the **up** or **down** key to shift the image up or down and **left** or **right** key to shift the image left or right.

▸ When finished, press **EXIT** to return or **ENTER** to continue to zoom/focus

9.7 Quick Access Keys

The function keys on top of the RCU can be associated with an adjustment item in one of the adjustment menus. Each item which is not password protected or does not have a key on the RCU can be associated to a function key.

The following functions are factory pre-programmed:

F1	Color depth
F2	Lens Adjustment Shift
F3	Configuration
F4	Gamma
F5	Color Temperature
	Restore Defaults

To program the quick access keys (function keys):

▸ Scroll through the menus until the desired menu is active

▸ Push the desired function key for 3 seconds. The message "Quick access to this menu with Fx', where x is the digit of the selected function key, will be displayed. If the selected menu is not a valid menu for the quick access keays the next message will be displayed: "Quick access to this menu impossible".

9.8 Internal Patterns

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

To select an internal pattern, handle as follow:

▸ Push the cursor key **up** or **down** to highlight **'Internal Patterns'**.

▸ Press **ENTER** to select.

▸ The **internal pattern menu** will be displayed.

▸ Push the cursor key **up** or **down** to highlight the **Internal Patterns**.

▸ Press **ENTER** to display the selected internal pattern.

10 Service Mode

To start up the **Service Mode**:

▸ push the cursor key **up** or **down** to highlight **'Service'**

▸ press **ENTER**.

Some items in the **Service mode** are password protected (when the password function is active). Enter the password to continue. All other password protected items are now available if you stay in the **adjustment mode**.

The **service menu** is built-up in two parts which are connected together with the **'more'** item.

If the desired item is not in the list of the displayed menu, select **'more'** with the cursor key and push **ENTER** to display the other items in the **service menu**.

Service	Service
Identification	Barco Logo
Change Password	Panel Adjustments
Change Language	Uniformity
Change Proj. Address	Preset Input Balance
Change Baudrate PC	I2C Diagnosis
Reset Lamp Runtime	More ....
More	
Select with key **up** or **down,** then **<Enter>**, **<EXIT>** to return	Select with key **up** or **down,** then **<Enter>**, **<EXIT>** to return

10.1 Identification

To display the **Identification screen**:

▸ Push the cursor key **up** or **down** to highlight **'Identification'**.

▸ Press **ENTER** to display the Identification screen.

The Identification screen gives an overview of:

type of projector	Barcoreality Helios
projector address	to change the address of the projector, see **10.4 Change Projector Address**
software version	
installation configuration	possible installations: Front/Ceiling Front/Table Rear/Ceiling Rear/Table To change the **installation configuration** follow the instructions in chapter **13.1 Faults**.
baud rate	transfer speed for communication with an IBM PC (or compatible) or MAC. The baud rate of the projector must be the same as the baud rate of the connected computer. When there is a difference, consult chapter**10.5 Change Baudrate PC**.
text	**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	gives the total run time since the first start up. All projectors leave the factory with a run time of approximately 24 hours.

10.2 Change Password

This item is **password protected** when the password strap is installed.

The **password** function is enabled when the password strap on the controller module is installed. Consult an authorized Barco service technician to change the strap position.

How to change the password:

▸ Push the cursor key **up** or **down** to highlight **'Change password'**.

▸ Press **ENTER** to display the **Change Password menu**.

▸ The old password is displayed and can be changed by entering the digit with the numeric keys of the **RCU** or local **keypad**.

▸ Press **ENTER** to save the new entered password.

▸ Press **EXIT** if no changes have to be made.

10.3 Change Language

To change the language of the control software:

▸ Push the cursor key **up** or **down** to highlight **'Change Language'**.

▸ Press **ENTER** to display the **Change Language menu**.

▸ Push the cursor key **up** or **down** to highlight the desired language.

▸ Press **ENTER** to change the language. (Available languages: English)

10.4 Change Projector Address

Every projector requires an individual address between 0 and 255. This address can be software installed. In addition the common addresse can be set to '0' or to '1'

To change the **individual** address:

▸ Push the cursor key **up** or **down** to highlight **'Change Projector Address'**.

▸ Press **ENTER** to display the **Change Projector Address menu**.

▸ Push the cursor key **up** or **down** to highlight **Projector address**

▸ Press **ENTER** to select. The actual address will be filled in.

▸ The first digit is highlighted. Enter the new projector address with the digit keys on the **RCU** or the local **keypad** or push the cursor key **left** or **right** to select a digit and change the value by pushing the cursor key **up** or **down** until the new value is reached. Continue with the other digits in the same way.

To change the **common** address:

▸ Push the cursor key **up** or **down** to highlight **'Change Projector Address'**.

▸ Press **ENTER** to display the **Change Projector Address menu**. The actual address will be filled in.

▸ Push the cursor key **up** or **down** to highlight **'Common Address'**

▸ The first digit is highlighted. Enter the new projector address with the digit keys on the **RCU** or the local **keypad** or push the cursor key **left** or **right** to select a digit and change the value by pushing the cursor key **up** or **down**.

Valid common addresses are '0' and '1', exclusively.

10.5 Change Baudrate PC

The communication speed between projector and computer, e.g. PC or MAC, has 8 possible speeds. The baud rate speed can be software set. Handle as follows:

▸ Push the cursor key **up** or **down** to highlight **'Change Baudrate PC'**.

▸ Press **ENTER** to display the **Change Baudrate PC menu**. The actual baud rate will be highlighted. The following baud rates are available:
230400/115200/57600/38400/19200/9600/4800/1200

▸ Push the cursor key **up** or **down** to highlight the desired baud rate.

▸ Press **ENTER** to select.

10.6 Reset Lamp Runtime

Reset lamp run time is only allowed when a new lamp is installed.

▸ Push the cursor key **up** or **down** to highlight **'Reset Lamp Runtime'**.

▸ Press **ENTER**.

When **Reset Lamp Run Time** is selected in the **Service Mode** selection menu, the following warning will be displayed :

Risk of electrical shock. Reset lamp run time is reserved to qualified service personnel.
If you are not qualified, press **EXIT** to cancel the reset operation.

10.7 Lamp Runtime History

This item provides an overview of the different lamp runtimes

▸ Push the cursor key **up** or **down** to highlight **'Lamp Runtime History'**.

▸ Press **ENTER** to display the overview **Lamp RunTime History.** A listing with the lamp serial number and the corresponding runtime will be displayed. The actual installed lamp will be marked.

▸ Press **EXIT** to return to the service mode selection menu.

10.8 BARCO logo

The BARCO logo can be added to the image, in overlay or on a background, on any place on the screen.

To add the BARCO logo or to change a setting in the **BARCO logo menu**:

▸ Push the cursor key **up** or **down** to highlight **'BARCO logo'**.

▸ Press **ENTER** to display the **BARCO logo menu**. The actual settings will be displayed.

Within this menu, three toggle settings and a shift control are available.

STATUS [ON/OFF]	**ON**: BARCO logo will be displayed on the screen. **OFF**: No BARCO logo displayed on the screen.
BACKGROUND [ON/OFF]	**ON**: BARCO logo will be displayed on a black background. **OFF**: BARCO logo will be displayed without any background.
SHIFT	By pushing the cursor key **up**, **down**, **left** or **right**, the BARCO logo can be positioned anywhere on the screen.
HOT KEY [TEXT/OFF]	**OFF**: no key on the **RCU** is used to display the BARCO logo **TEXT**: the **TEXT** key on the **RCU** is used to display or to remove the BARCO logo with one single push on this key (only in operational mode)..

10.9 Panel Adjustment

> ⚠ Changing these settings may seriously affect the performance of the projector.

Push the cursor key **up** or **down** to highlight **'Panel Adjustment'**.

When **Panel Adjustment** is selected in the **Service Mode selection menu**, the following warning will be displayed :

> ⚠ Panel Adjustment is reserved to qualified service personnel.
> If you are not qualified, press **EXIT** to cancel the preset input balance.

10.10 Uniformity

> ⚠ Changing these settings may seriously affect the performance of the projector

Push the cursor key **up** or **down** to highlight **'Uniformity'**.

When **Uniformity** is selected in the **Service Mode selection menu**, the following warning will be displayed :

> ⚠ Uniformity is reserved to qualified service personnel.
> If you are not qualified, press **EXIT** to cancel the uniformity.

10.11 Preset Input Balance

> ⚠ Changing these settings may seriously affect the performance of the projector.

When **Preset Input Balance** is selected in the **Service Mode selection menu**, the following warning will be displayed :

> ⚠ Preset **Input Balance** is reserved to qualified service personnel.
> If you are not qualified, press **EXIT** to cancel the preset input balance.

10.12 I2C Diagnosis.

Gives an overview of the correct working of the I²C controlled IC's.

Highlight **I2C diagnosis** by pushing the cursor key **up** or **down** and press **ENTER** to display the overview.

11 Maintenance and Servicing

CYCLOPS requires very little maintenance and servicing. Maintenance operations are nevertheless necessary at regular intervals to guarantee good operational performance.

This chapter describes maintenance and servicing of CYCLOPS.

Only authorized personnel should carry out other maintenance work not explicitly mentioned in this user manual!

Never open the access cover without first disconnecting the power supply cord! Measurements and tests with the opened device may be carried out only in the factory or by specially trained personnel, due to the dangers of electrical shock.

11.1 General

For safety reasons, all servicing, including replacement of the lamp, is restricted to authorized personnel only!

⚠	**Only authorized personnel should carry out maintenance work!**
	Never open the access cover without first disconnecting the power supply cord! Measurements and tests with the opened device may be carried out only in the factory or by specially trained personnel, due to the dangers of electrical shock.

11.2 Cleaning

11.2.1 Cleaning the Screen

⚠	**The screen is a high-precision optical component. It is made of plastic and is not scratch-proof. Only use a soft, damp cloth when cleaning.**

The following cleaning solutions can be used:

‣ 50% alcohol/water solution, e. g. Glassex;

‣ soap/water solution (washing-up liquid).

The screen must only be wiped in a vertical direction!

11.2.2 Lens Cleaning Procedure

To minimize the possibility of damaging the optical coating or scratching exposed lens surface, we have developed recommendations for cleaning the lens. 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.

Proceed as follows :

‣ Always wipe lenses with a CLEAN Toraysee™ cloth.

‣ Always wipe lenses in a single direction. Do not wipe back and forwards across the lens surface as this tends to grind dirt into the coating.

‣ Do not leave cleaning cloth in either an open room or lab coat pocket, as doing so can contaminate the cloth.

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

‣ 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.

Order number for a new Toraysee™ cloth : R379058.

12 Technical Data

This chapter provides tabular overviews about the technical details of CYCLOPS.

12.1 General Data

characteristic	specification					
dimensions						
	98" diagonal					
screen width	1943.5 mm | 76.5 in.					
screen height	1544 mm | 61.2 in.					
total depth	1487 mm | 58.5 in.					
weight						
total weight	166 kg | 366 lbs					
(incl. projector, mirror, screen)						
weight of cladding	25 kg | 55.11 lbs					
operating conditions	Number of modules next to each other depending on temperature and humidity:					
Temperature (°C)	18-22	15-25	10-30	0-40	-10-50	
Rel. Humidity (%)						
40-60	16	11	7	4	3	
20-80	5	4	3	2	2	
0-100	3	2	2	1	1	

Table 12-1

12.2 Technical Data of Optical System

characteristic	specification
CYCLOPS	Modular rear projection system, SXGA-resolution, 1280×1024pixels
colors	16.7 millions
illuminance	650 lumens
contrast	350:1
lamp	120 W UHP lamp, operation time 6000 hours
Double Element Screen	Viewing angle vertical: 9° Viewing angle horizontal: 32° Gain 3.5, luminance 240cd/m²
Single Element Screen	Viewing angle vertical: 70° Viewing angle horizontal: 70° Gain 1, luminance 70 cd/m²

Table 12-2

12.3 Technical Data Of Electrical System

characteristic	specification
AC power supply	95VAC .... 230VAC ± 10%
mains frequency	50....60 Hz
power consumption	Max. 300 W with 230VAC

Table 12-3

12.3.1 Slot 1: 5 cable input, 5×BNC
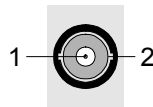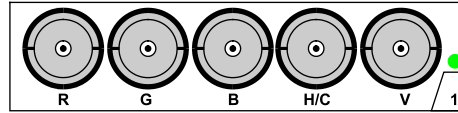
1	Signal
2	Shield

Connector name	R	G	B	H	V
Input signal					
RGBHV	R	G	B	H	V
RGBS	R	G	B	S	-
RGsB	R	Gs	B	-	-
Composite Video	-	Video	-	-	-
Super Video	-	Y	-	-	C
Component Video - SS	R-Y	Y	B-Y	S	-
Component Video - SOY	R-Y	Ys	B-Y	-	-

Table 12-4

12.3.2 Slot 2: Computer input/Monitor output
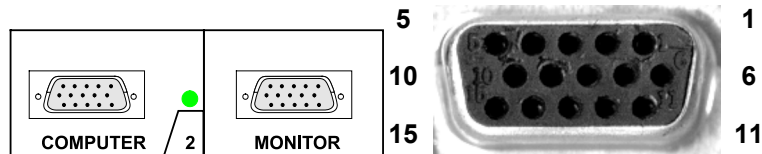
1	Red	6	ground	11	loop through to monitor
2	Green	7	ground	12	loop through to monitor
3	Blue	8	ground	13	HSYNC / CSYNC
4	Green	9	loop through to monitor	14	VSYNC
5	ground	10	ground	15	loop through to monitor

Table 12-5

12.3.3 Slot 3: Video Input
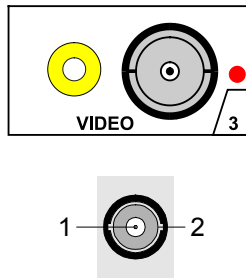
	1×BNC or cinch 1.0Vpp ± 3 dB, no loop through
1	Signal
2	Shield

Table 12-6

12.3.4 Slot 4: S-Video Input
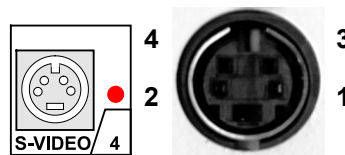
1	ground luminance	**3**	luminance 1.0Vpp ± 3 dB
2	ground chrominance	**4**	chrominance 282 mVpp ± 3 dB

Table 12-7

12.3.5 Slot 5: Serial digital Input / Serial digital Output
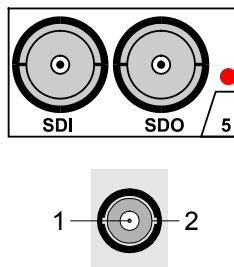
1	Signal
2	Shield
SDI	BNC input, 75 Ω terminated
SDO	BNC output, output impedance 75 Ω

Table 12-8

12.4 Parts List

12.4.1 Scope of Delivery of R9831150

order No.	designation
R9831150	Cyclops, modular rear projection unit, incl. projector and double element screen (fresnel-lenticular) (SXGA resolution), without cladding
R9831155	Cyclops, modular rear projection unit, incl. projector and diffusion screen (fresnel-lenticular) (SXGA resolution), without cladding
ROPT1853	Standard shielding for CYCLOPS 100 S
ROPT1855	Standalone shielding for CYCLOPS 100 S

Table 12-9

12.4.2 Optional Parts

order No.	designation
R9829960	Executive Remote Control
R9827890	VS05

Table 12-10

12.4.3 User's Manuals

order No.	title
R5976426	User's Manual CYCLOPS
R5975765	Owner's manual RCVDS05
R5975245	Owner's manual VS05

Table 12-11

12.5 Addresses

Feel free to contact us if you have any further questions!

▸ **Barco Control Rooms GmbH**
An der Rossweid 5 • D-76229 Karlsruhe • Germany
Phone (49) (721) 6201-0 • Fax (49) (721) 6201-298
E-mail **info.de.bcd@barco.com**, Web **www.barcocontrolrooms.de**

▸ **BARCO N.V. Projection Systems**
Noordlaan 5 • B-8520 Kuurne • Belgium
Phone (32) (56) 36-8211 • Fax (32) (56) 36-8251
E-mail **sales.bcd@barco.com** • Web **www.barcocontrolrooms.com**

13 Troubleshooting

When faults occur with CYCLOPS which are not described below please contact BARCO.

13.1 Faults

Faults	cause/steps
no display: lamp not ignited and fan of the illumination unit not running	The equipment is not connected to power supply. It must be supplied with suitable voltage (see**12.3 Technical Data Of Electrical System**)!
	Power switch is off. Switch on power switch. See **5.1.3 Switching on**
display is upside-down	change the configuration: To change the configuration of the projector, proceed as follows: ▸ Press **ENTER** to start up the adjustment mode. ▸ Press the cursor key **up** or **down** to select **'Installation'**. ▸ Press **ENTER** to display the **Installation menu**. ▸ Press the cursor key **up** or **down** to select **'Configuration'**. ▸ Press **ENTER** to display the **Configuration menu**. The actual installed configuration will be highlighted. Press the cursor key **up** or **down** to select the corresponding configuration.
the display is dark though the lamp is ignited	there is no signal applied. Check the input source and the connections
CYCLOPS can not be controlled via the **RCU**	point the front of the **RCU** directly to the sensor on the screen. When using the wireless remote control, make sure you are within the effective operating distance (30m, 100ft in a straight line). The remote control unit will not function properly if strong light strikes the sensor window or if there are obstacles between the remote control unit and the IR sensor.
	Check the batteries of the Remote Control Unit!

Table 13-1

13.2 Contact

13.2.1 Hot Line

Feel free to contact us if you have any further questions!

▸ **Barco Control Rooms GmbH**
An der Rossweid 5 • D-76229 Karlsruhe • Germany
Phone (49) (721) 6201-0 • Fax (49) (721) 6201-298
E-mail **info.de.bcd.@barco.com**, Web **www.barcocontrolrooms.de**

▸ **BARCO N.V. Projection Systems**
Noordlaan 5 • B-8520 Kuurne • Belgium
Phone (32) (56) 36-8211 • Fax (32) (56) 36-8251
E-mail **sales.bcd@barco.com**,• Web **www.barcocontrolrooms.com**

14 Appendix A: Standard Source Set Up Files

Name: name of file, contains the settings
Resolution: image resolution, when followed by ...I means interlaced.
FVERT/Hz: vertical frame frequency of the source
FHOR/kHz: horizontal frequency of the source.
FPIX/MHz: pixel frequency
PTOT: total pixels on one horizontal line
PACT: active pixels on one horizontal line
LTOT: total lines in one field
LACT: active lines in one field

name	resolution	Fvert/Hz	Fhor/kHz	Fpix/MHz	ptot	pact	ltot	lact
1600_48V	1600 × 600i	48,040	62,500	135,000	2160	1600	651	600
1600_60V	1600 × 1200	60,000	75,000	162,000	2160	1600	1250	1200
1600_65V	1600 × 1200	65,000	81,250	175,500	2160	1600	1250	1200
1600_70V	1600 × 1200	70,000	87,500	189,000	2160	1600	1250	1200
8514_A	1024 × 384i	43,479	35,522	44,900	1264	1024	409	384
CGA	640 × 200	59,924	15,700	14,318	912	640	262	200
COMPUSC4	1024 × 480i	29,945	30,694	39,779	1296	1024	512	480
ED	735 × 480	59,943	31,470	28,638	910	735	525	480
EGA	640 × 350	59,702	21,851	16,257	744	640	366	350
EWS_50	1280 × 1024	50,000	52,350	87,948	1680	1280	1047	1024
EWS_60	1280 × 1024	60,000	63,900	107,352	1680	1280	1065	1024
EWS_60V	1280 × 1024	60,282	63,657	110,000	1728	1280	1056	1024
EWS_72	1280 × 1024	72,000	76,968	130,076	1690	1280	1069	1024
EWS_75	1280 × 1024	75,025	79,976	135,000	1688	1280	1066	1024
EWS_85	1280 × 1024	85,024	91,146	157,500	1728	1280	1072	1024
EWS_100	1280 × 1024	100,139	107,350	185,5	1728	1280	1072	1024
FMR	640 × 400i	42,323	36,440	28,570	784	640	431	400
FMTO_2	640 × 400	55,370	24,370	21,056	864	640	440	400
HD_1080I	1920 × 540i	30,000	33,750	74,250	2200	1920	562	540
HD720P	1280 × 720	60,000	45,000	74,250	1650	1200	750	720
HDMAC	1252 × 570i	25,020	31,250	39,125	1252	1024	625	570
INTER_GR	1184 × 886	67,170	61,796	92,941	1504	1184	920	886
MAC_2	640 × 480	66,667	35,000	30,240	864	640	525	480
MAC_3	512 × 384	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	512 × 342	60,158	22,259	15,670	704	512	370	342

name	resolution	Fvert/Hz	Fhor/kHz	Fpix/MHz	ptot	pact	ltot	lact
MAC_6	832 × 624	74,546	49,722	57,280	1152	832	667	624
MAC_7	1024 × 768	74,907	60,150	80,000	1330	1024	803	768
MAC_LC	640 × 480	66,619	34,975	31,338	896	640	525	480
MAC_POR	640 × 870	74,996	68,846	57,280	832	640	918	870
MUSE	1172 × 518i	30,000	33,750	37,125	1172	1024	563	518
MXGA_60	1152×864	60,000	54,540	79,410	1456	1152	909	864
MXGA_70	1152×864	70,012	63,851	94,500	1480	1152	912	864
MXGA_75	1152×864	75,000	67,500	108,000	1600	1152	900	864
MXGA_80	1152×864	80,000	76,640	110,362	1440	1152	958	864
MXGA_85	1152×864	84,999	77,094	121,500	1576	1152	907	864
MXGA_100	1152×864	100,000	93,000	145,824	1568	1152	930	864
VIDEO525	1302 × 239i	29,970	15,734	32,207	1302	1024	263	239
VIDEO625	1024 × 278i	25,000	15,625	31,984	1310	1024	313	278
PAM500	640 × 400	60,000	26,400	22,810	864	640	440	400
PAM800	1120 × 375i	44,936	36,443	50,000	1372	1120	406	375
PC98_1	640 × 400	56,416	24,823	21,050	848	640	440	400
PC98_2	1120 × 375i	39,994	32,835	47,840	1457	1120	411	375
PC98_3	1120 × 750	60,000	50,000	78,569	1571	1120	833	750
S1152_66	1152 × 900	66,004	61,846	94,500	1528	1152	937	900
S1152_76	1152 × 900	76,637	71,809	108,000	1504	1152	937	900
SDI_625	675 × 2781	25,000	15,625	13,500	864	720	313	278
SDI_525	675 × 2401	29,970	15,734	13,500	858	720	263	240
SG_50	1600 × 1200	50,000	62,500	130,313	2085	1600	1250	1200
SG_60_1	1280 × 1024	60,000	63.900	107,352	1680	1280	1065	1024
SG_60_2	1024 × 768	60,000	48.780	64,390	1320	1024	813	768
SG_60_3	960 × 680	60,000	43,200	54,432	1260	960	720	680
SG_60_4	1600 × 1200	60,000	75,000	156,375	2085	1600	1250	1200
SUNEWS67	1280 × 1024	67,189	71,691	117,000	1632	1280	1067	1024
SUNEWS76	1280 × 1024	76,107	81,130	135,000	1664	1280	1066	1024
SUN×GA60	1024 × 768	59,984	48,287	64,125	1328	1024	805	768
SUN×GA70	1024 × 768	70,041	56,596	74,250	1312	1024	808	768
SUN×GA77	1024 × 768	77,069	62,040	84,375	1360	1024	805	768
SUP_MAC	1024 × 768	60,000	48,780	63,999	1312	1024	813	768
SVGA_56V	800 × 600	56,250	35,156	36,000	1024	800	625	600
SVGA_60V	800 × 600	60,317	37,879	40,000	1056	800	628	600
SVGA_72V	800 × 600	72,084	48,080	50,003	1040	800	667	600

name	resolution	Fvert/Hz	Fhor/kHz	Fpix/MHz	ptot	pact	ltot	lact
SVGA_75	800 × 600	75,00	46,875	49,500	1056	800	625	600
SVGA_85	800 × 600	85,061	53,674	56,250	1048	800	631	600
SVGA_100	800 × 600	100,276	62,973	66,500	1056	800	631	600
VGA_72V	640 × 480	72,800	37,856	31,496	832	640	520	480
VGA_75	640 × 480	75,000	37,500	31,500	840	630	500	480
VGA_85	640 × 480	85,008	43,269	36,000	832	640	509	480
VGA_100	640 × 480	100,000	52,500	44,520	848	640	525	480
VGA_GR	640 × 480	59,941	31,469	25,175	800	640	525	480
VGA_TXT	720 × 400	70,087	31,469	28,322	900	720	449	400
VGA75ISO	640 × 480	75,000	39,375	31,500	800	640	525	480
XGA_60	1024 × 768	60,000	48,360	64,996	1344	1024	806	768
XGA_70	1024 × 768	70,000	57,050	78,044	1368	1024	815	768
XGA_70V	1024 × 768	69,705	56,182	74,610	1328	1024	806	768
XGA_72	1024 × 768	71,955	58,140	80,000	1376	1024	808	768
XGA_75	1024 × 768	75,781	61,080	86,000	1408	1024	806	768
XGA75_GS	1024 × 768	74,534	59,701	79,284	1328	1024	801	768
XGA_85	1024 × 768	84,997	68,677	94,500	1376	1024	808	768
XGA_100	1024 × 768	100,000	80,800	110,534	1368	1024	808	768

15 Appendix B: Source Numbers 81 - 86 And 91 - 96

15.1 Projector without any 800 peripheral connected.

The source numbers 81 - 86 and 91 - 96 do not correspond to physical inputs. An additional adjustment file can be created for these source numbers. This file can contain different settings. The relationship between sources 1 - 6 and 91 - 96 or between 1 - 6 and 81 - 86 is shown in the diagram below.

source input	source number	file
1	1	A
1	81	A'
1	91	A''
2	2	B
2	82	B'
2	92	B''
3	3	C
3	83	C'
3	93	C''
	. . .	
6	6	F
6	86	F'
6	96	F''

Follow the steps below to create a second or a third file for sources 1 to 6:

▸ Select the source between 1 and 6.

▸ Select the corresponding source number between 81 and 86 or 91 and 96 with the digit keys on the **RCU**.

▸ Enter the **adjustment mode** and load a corresponding file. Edit this file if necessary.

▸ Save the file and exit the **adjustment mode**.

15.2 Projector with a 800 peripheral connected.

15.2.1 Source numbers 91 - 99.

The source numbers 91 - 99 do not correspond to physical inputs. An additional adjustment file can be created for these source numbers (source numbers of the 800 peripheral). This file can contain different settings. The relationship between sources 1 - 9 of the 800 peripheral and 91 - 99 is shown in the diagram below.

source input	source number	file
1	1	A
1	91	A'
2	2	B
2	92	B'
3	3	C
3	93	C'
	.	
	.	
	.	
9	9	I
9	99	I'

15.2.2 Source numbers 81 - 86

Only valid if no input module is connected to slot 81 - 86 of a RCVDS05.

The source numbers 81 - 86 correspond to the physical inputs 1 - 6 of the projector.

e.g. When slot 1 of the projector has to be selected, key in source number 81.

The relationship between the sources of slot 1 - 6 of the projector with 800 peripheral is shown in the table below.

source of slot	source number
1	81
2	82
3	83
4	84
5	85
6	85