

Lenses for CLM

Installation manual

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1. LENS KIT



CAUTION: Never transport the projector with the lens mounted on it !
Always remove the lens before transporting the projector.



WARNING: As removing the front is only allowed by qualified service personnel, the lens should be installed by a qualified service technician.

1.1 Kit Contents

Kit Contents

Contents:

- One of the available lens types (see "Available Lens Types", page 1).
- Installation Manual.
- Toraysee™ Cloth

1.2 Available Lens Types

Overview

Lens	Product Number
CLD (1.2-1.6:1)	R9849870
CLD (1.6-2.4:1)	R9861100
CLD (2.4-4.3:1)	R9849890



Image 1-1
R9849870: CLD zoom lens (1.2 - 1.6 : 1)



Image 1-2
R9861100: CLD zoom lens (1.6 - 2.4 : 1)



Image 1-3
R9849890: CLD zoom lens (2.4-4.3 : 1)

1.3 Lens formulas

Formulas

Lens	Throw ratio for CLM	Metric formulas (meter)	Inch formulas (inch)
CLD (1.2 - 1.6 : 1)	1.2 - 1.6	PD _{min} =1.216 x SW - 0.05 PD _{max} =1.657 x SW - 0.097	PD _{min} =1.216 x SW - 1.97 PD _{max} =1.657 x SW - 3.80
CLD (1.6 - 2.4 : 1)	1.6 - 2.4	PD _{min} =1.60 x SW - 0.04 PD _{max} =2.38 x SW - 0.11	PD _{min} =1.60 x SW - 1.73 PD _{max} =2.38 x SW - 4.25
CLD (2.4-4.3 : 1)	2.4 - 4.3	PD _{min} =2.42 x SW - 0.09 PD _{max} =4.39 x SW - 0.22	PD _{min} =2.42 x SW - 3.74 PD _{max} =4.39 x SW - 8.75



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

1.4 Lens formulas

Formulas

Lens	Throw ratio for CLM HD	Metric formulas (meter)	Inch formulas (inch)
CLD (1.2 - 1.6 : 1)	1.1 - 1.5	PD _{min} =1.12 x SW - 0.05 PD _{max} =1.53 x SW - 0.097	PD _{min} =1.12 x SW - 1.97 PD _{max} =1.53 x SW - 3.80
CLD (1.6 - 2.4 : 1)	1.5 - 2.2	PD _{min} =1.47 x SW - 0.044 PD _{max} =2.20 x SW - 0.108	PD _{min} =1.47 x SW - 1.734 PD _{max} =2.20 x SW - 4.245
CLD (2.4-4.3 : 1)	2.2 - 4.0	PD _{min} =2.24 x SW - 0.095 PD _{max} =4.05 x SW - 0.222	PD _{min} =2.24 x SW - 3.737 PD _{max} =4.05 x SW - 8.751



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1.5 Lens removal

How to remove the lens

1. Remove the front cover of the projector. See "Removal of the front cover", page 4 .
2. Support the lens with one hand and push the lens lock handle to the right.

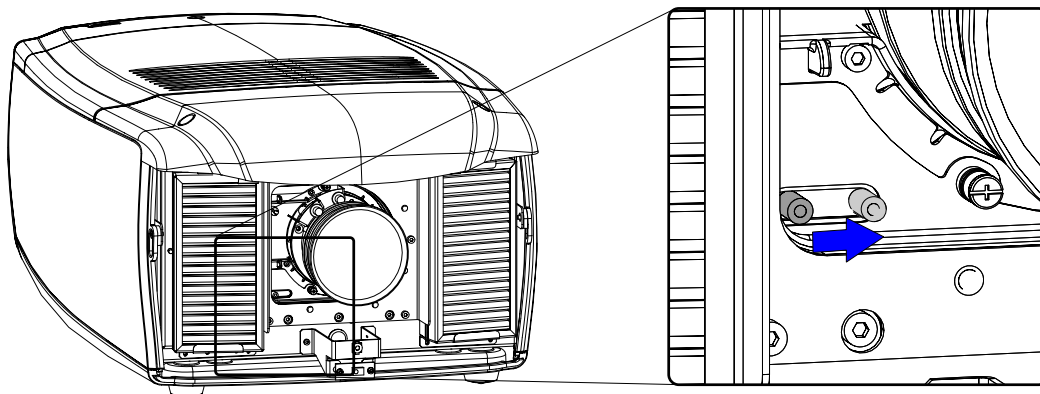


Image 1-4
Lens removal

3. Pull out the lens backward until the jack connection is open (A). Slide the lens out of the lens holder.

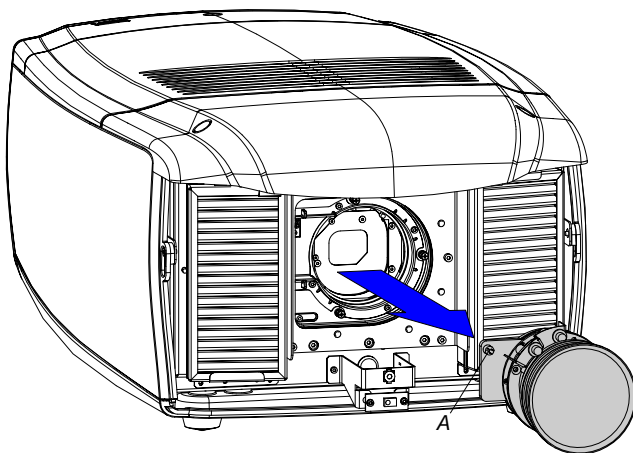


Image 1-5
Slide out lens

1.6 Lens installation

How to install the lens

1. Remove the front cover of the projector. See "Removal of the front cover", page 4 .
2. Remove the foam rubber in the opening of the lens holder if not yet removed.
3. Place the lock handle A in its right position (table mounted projector).

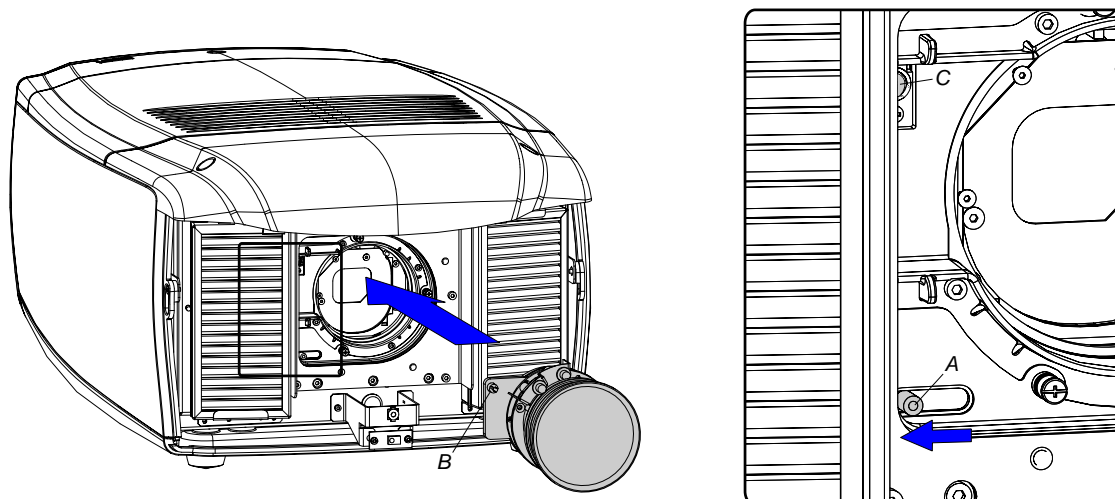


Image 1-6
Mounting the lens

1. Lens kit

4. Insert the lens in such a way that the female jack (C) is in front of the male jack (upper left corner) (B) and ensure the lens touches the front plate of the lens holder.
Caution: Do not release the lens yet, as the lens may fall out of the lens holder.
5. Secure the lens in the lens holder by sliding the lens lock handle A into the "locked" position (left position for table mounted projector).
6. Check if the lens is really secured by trying to pull the lens out of the lens holder.



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1.7 Removal of the front cover

Necessary tools

Flat screwdriver

How to remove the front cover

1. Release the captive screw at the middle bottom of the front cover (a)

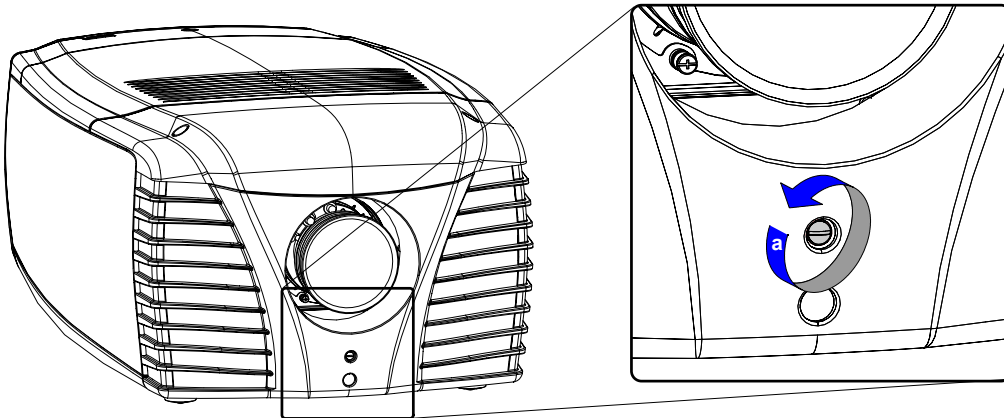


Image 1-7
Release captive screw

2. Release the front cover from the projector doing the following:
 - a) stand in front of the projector and pull the bottom side of the cover a little toward you (b)
 - b) In that slightly pivoted position, pull the cover downwards to release it from the top cover (c)

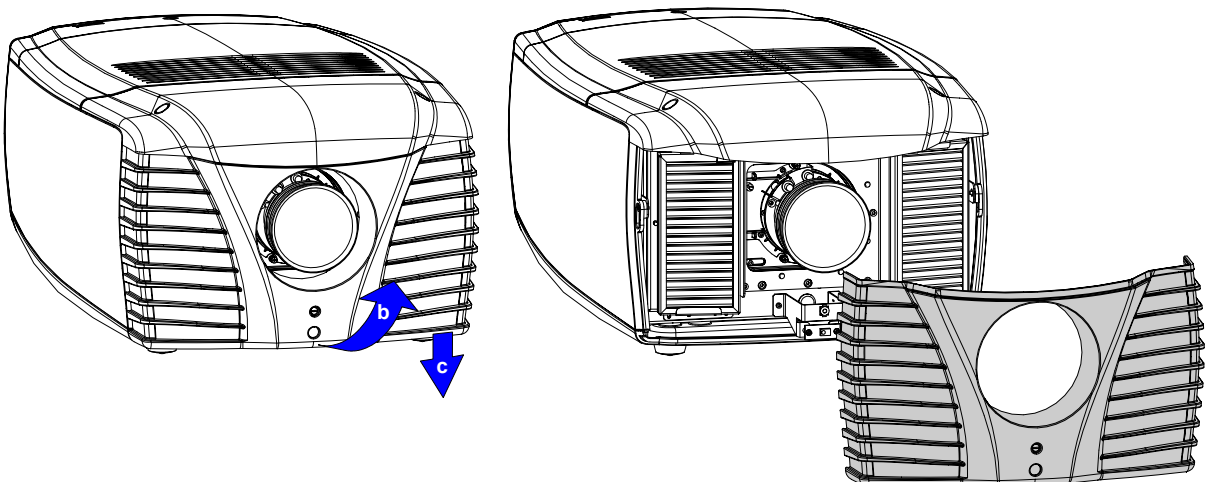


Image 1-8
Remove the front cover

1.8 Quick Lens Adjustment

1.8.1 Quick Lens Adjustment via LENS key

Quick zoom/focus adjustment

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

The zoom/focus menu will be displayed.

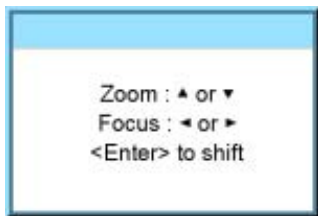


Image 1-9

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



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

Quick shift adjustment

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

The zoom/focus menu will be displayed.

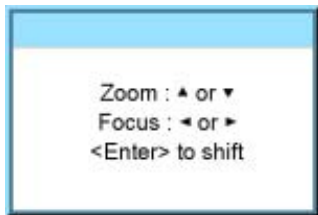


Image 1-10

2. Press **ENTER**.

The shift menu will be displayed.

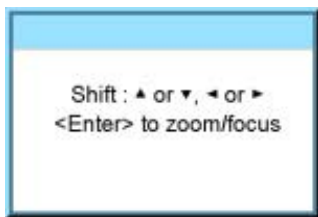


Image 1-11

3. Push the cursor key ▲ or ▼ to shift the image up or down and ◀ or ▶ to shift the image left or right.
4. When finished, press **EXIT** key to return or **ENTER** to continue to zoom/focus.



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

1.8.2 Direct Lens Adjustment (RCU)

Lens adjustment buttons on the Remote Control

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

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

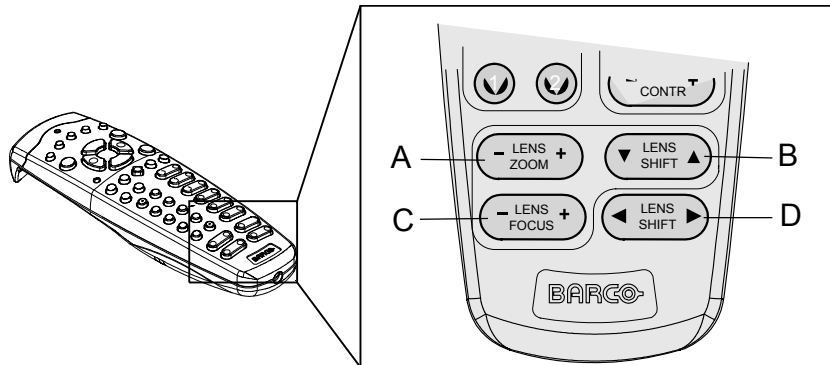


Image 1-12
Direct lens adjustment keys

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

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

1.9 Cleaning the lens



To minimize the possibility of damage to optical coatings, or scratches to lens surfaces, we have developed recommendations for cleaning. **FIRST**, we recommend you try to remove any material from the lens by blowing it off with clean, dry deionized air. **DO NOT** use any liquid to clean the lenses.

Necessary tools

Toraysee™ cloth (delivered together with the lens kit). Order number : R379058.

How to clean the lens ?

Proceed as follow :

1. Always wipe lenses with a CLEAN Toraysee™ cloth.
2. Always wipe lenses in a single direction.
Warning: Do not wipe back and forwards across the lens surface as this tends to grind dirt into the coating.
3. Do not leave cleaning cloth in either an open room or lab coat pocket, as doing so can contaminate the cloth.
4. If smears occur when cleaning lenses, replace the cloth. Smears are the first indication of a dirty cloth.



CAUTION: Do not use fabric softener when washing the cleaning cloth or softener sheets when drying the cloth.

Do not use liquid cleaners on the cloth as doing so will contaminate the cloth.



Other lenses can also be cleaned safely with this Toraysee™ cloth.