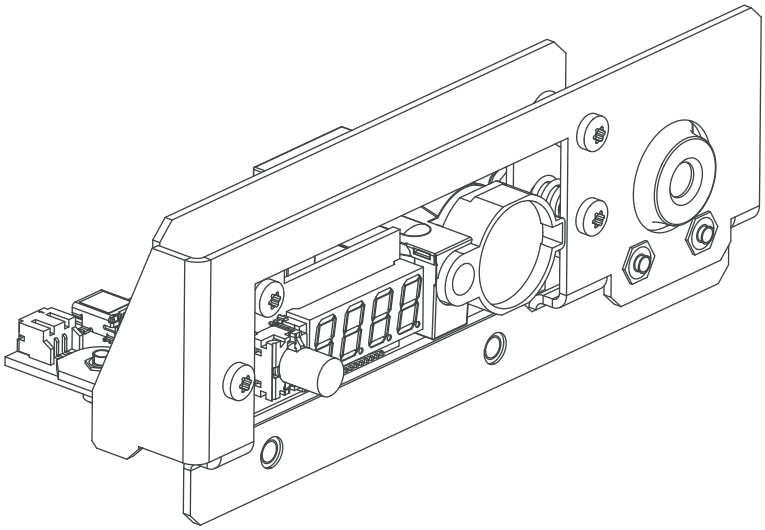
Distance meter

For UDX and UDM



Installation Manual

Barco Fredrikstad AS
Habornveien 53, N-1630 Gamle Fredrikstad, Norway
Support.fre@barco.com
www.barco.com

Registered office: Barco NV
President Kennedypark 35, 8500 Kortrijk, Belgium
www.barco.com/en/support
www.barco.com

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Disclaimer for camera usage

Barco provides a kit with a laser range finder and USB camera to help measure the distance from the front of the projector to the projected surface and to help monitor the performance of the projector. Barco disclaims any liability for any use of the USB camera outside this intended use.

Table of contents

Distance meter and camera kit

1

CAUTION: The distance meter must be adjusted after installation, see “Adjusting the distance meter”, page 11

1.1 About the upgrade kit

Purpose of the upgrade kit

This upgrade kit is exclusively designed to upgrade the UDM or UDX projector with a distance meter and camera. This upgrade kit can not be used for other equipment.

Content of the upgrade kit

Description	Pcs	UDX	UDM
Distance meter + camera kit	1	X	X
M4 x 6 mm screws DIN 912 Socket screw Inhex	2	X	
Front cover UDX	1	X	
Battery holder	1	X	X
M3 x 8 mm screw countersunk Torx	2	X	X
Label UDX laser exposure	1	X	X
Distance board bracket	1		X
Front cover UDM	1		X
Battery holder plate	1	X	X
M3 x 8 mm screws, panhead Torx	2	X	X

The battery holder is fit for 2 AA batteries. These batteries are **not** included in the kit.

Component overview distance meter assembly

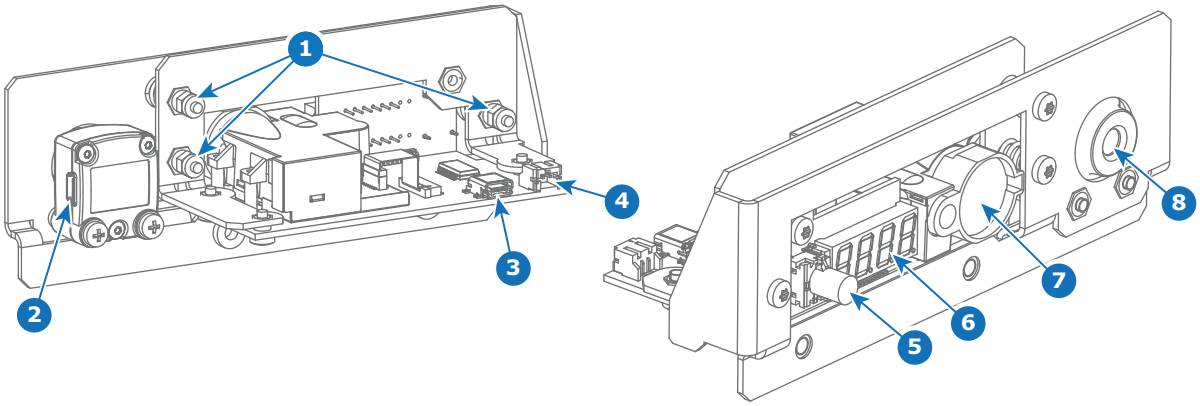

Image 1-1

1 Distance meter adjustment screws
2 USB connector camera
3 USB connector distance meter
4 Connector battery holder
5 Distance meter push button
6 Distance meter display
7 Distance meter
8 Camera

Cover plate UDX

The front side of the cover plate is painted black with a removable protective foil to protect it. The back side of the cover plate is painted black and has an adhesive placed on it.

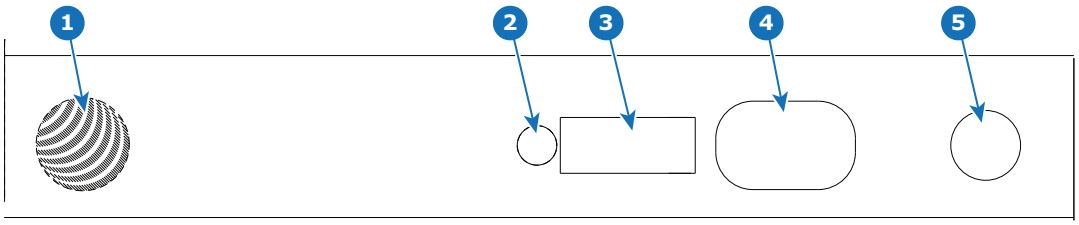

Image 1-2

1 IR (Infra-Red) filter
2 Hole for the distance meter push button
3 Clear part for distance meter display
4 Clearance for the distance meter
5 Clearance for camera

Cover plate UDM

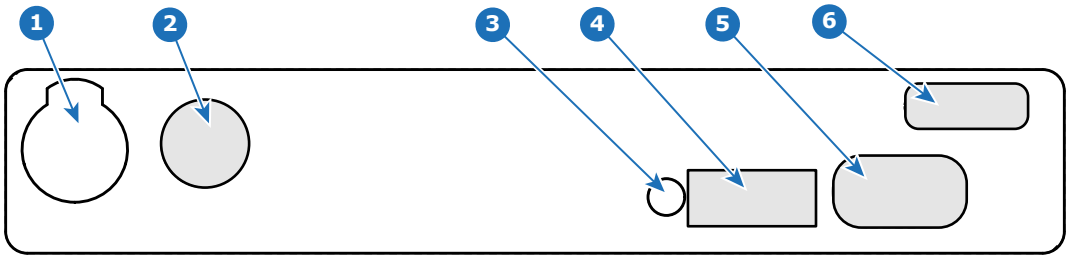

Image 1-3

1 Hole for the XLR Connector
2 Clear part for camera
3 Hole for the distance meter push button
4 Clear part fro distance meter display
5 Clear part for the distance meter
6 IR (Infra red) Filter

1.2 Installation process

Process overview

1. Unpack the upgrade kit and separate the parts needed to upgrade the projector involved.
2. Physically install the camera kit in the projector
   a) For UDM, see “Upgrading the UDM projector”, page 13
   b) For UDX, see “Installing the distance meter”, page 30
3. Adjusting the distance meter. See procedure “Adjusting the distance meter”, page 11

1.3 Adjusting the distance meter

WARNING: Laser Radiation — Do not stare into laser ranging beam, Class 2 IEC EN 60825-1:2014
Refer to UDM safety manual for details.

Required tools

Phillips screwdriver PH1

Adjusting the distance meter

1. Make sure your projector is mounted perpendicular to the screen. For more info, see the installation manual..
2. Turn off the light source.
3. Activate the distance meter by pressing the push button.
4. Check if the distance meter goes similarly perpendicular to the screen as the light source did.
5. Goes the distance meter similarly perpendicular to the screen as the light source did?
   - If yes, no further actions needed.
   - If no, manipulate the three adjustment screws of the laser range finder (reference 1, Image 1-4) clockwise or counterclockwise in order to adjust the laser source. Use a PH1 Phillips screwdriver to adjust the adjustment screws.

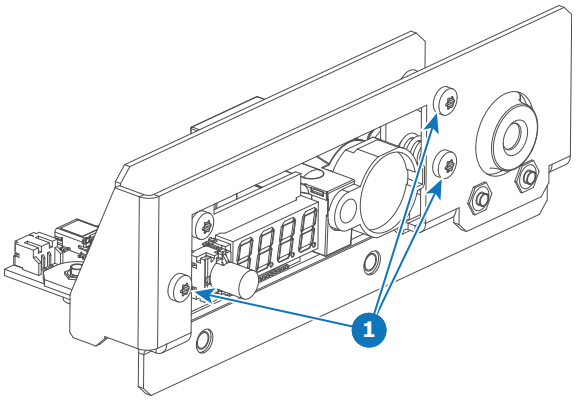

Image 1-4: Location of the adjustment screws.

1.4 Using the distance meter

WARNING: Laser Radiation — Do not stare into laser ranging beam, Class 2 IEC EN 60825-1:2014
See the product safety manual for details.

How to use the distance meter

1. Place the projector, with distance meter installed, in its final projection position and point it towards the desired projected surface.
2. Press the push button to activate the distance meter and read the distance from the display. The laser will be active for 30 seconds.
3. In order to switch the unit of measurement, press the push button for 3 seconds. You can choose between meters and feet.

The distance meter can also be operated remotely using the Pulse GUI. See chapter “Laser ranging” in the user guide of the projector.

Upgrading the UDM projector 2

2.1 Prepare the distance meter assembly

Required tools

- Phillips screwdriver PH1
- Torx screwdriver T10

Prepare the distance meter kit.

1. Remove the front bracket from the distance meter module.

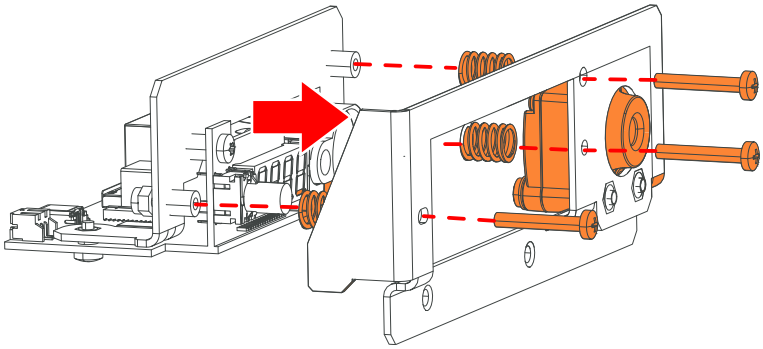

Image 2-1

2. Remove the camera from the front bracket.

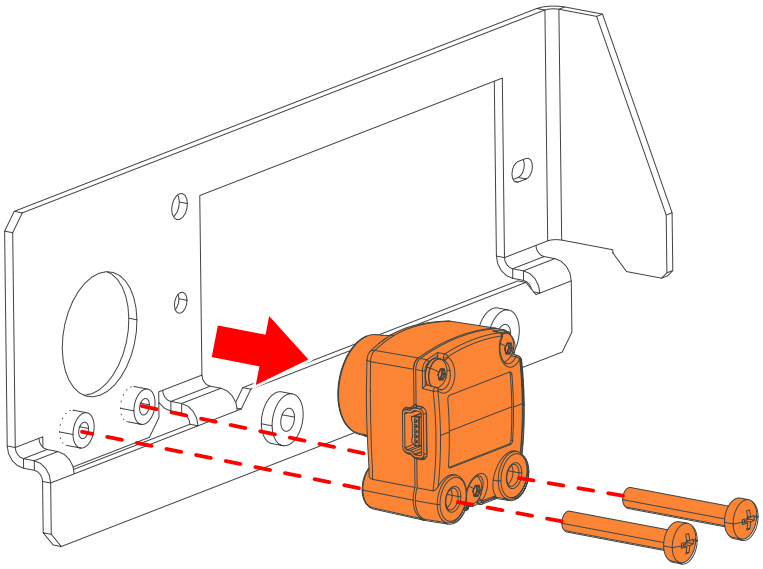

Image 2-2

3. Remove the bracket attached to the distance board by removing the four screws.

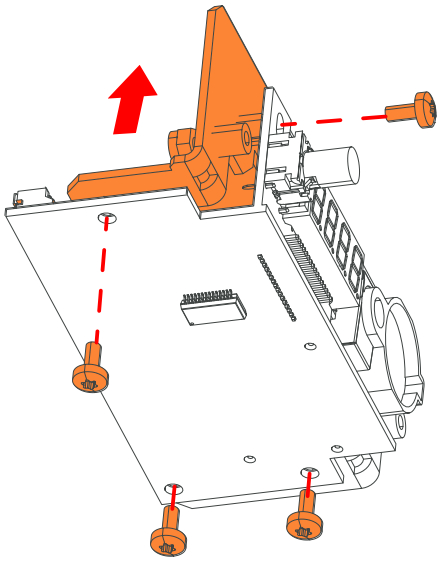

Image 2-3

4. Release the camera from the UDX bracket
5. Replace with the bracket. (R8792993) that follows the kit.. Position the bracket on the board, and enter and tighten the screws.

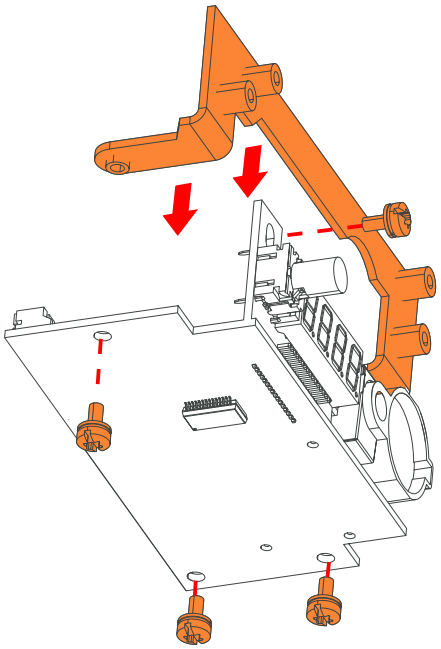

Image 2-4

2.2 Remove projector covers

Refer to the service manual for how to perform the preparation steps 1 to 5 below.

Required tools

- Flat screwdriver 5mm
- Torx screwdriver T20

Prepare the projector

1. Remove the lens
2. Remove the front cover
3. Remove the lower front profile
4. Remove the side cover
5. Remove the top Cover

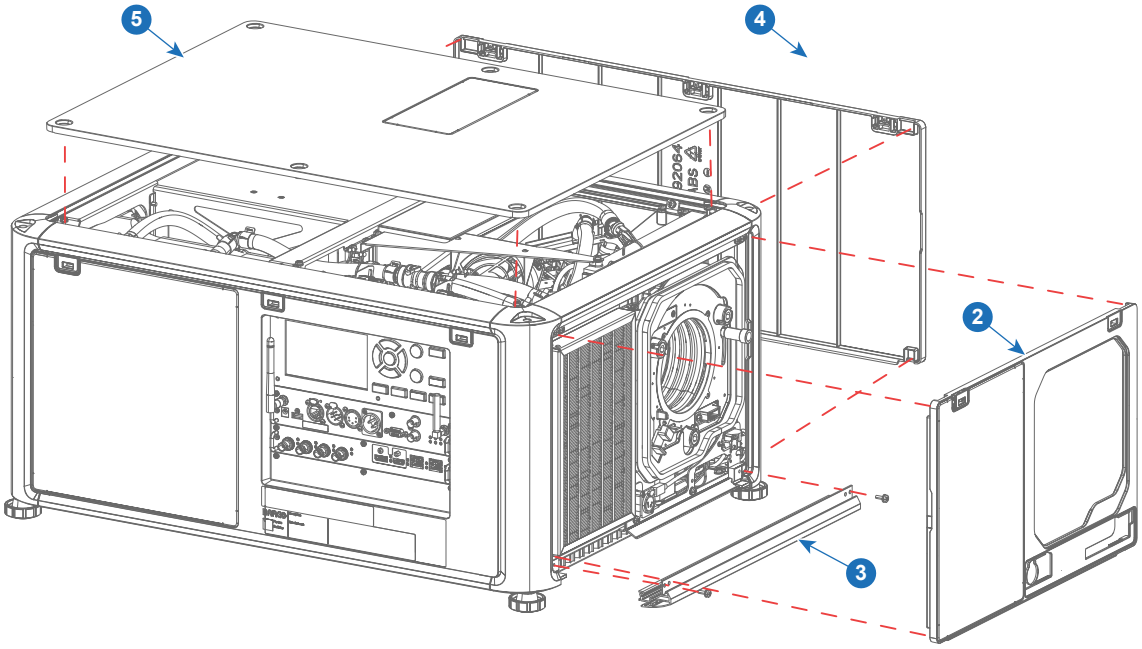

Image 2-5

2.3 Release the internal bracket in the UDM projector

The bracket for fixation of the distance kit to the UDM projector is already installed, and has to be released to be able to install the kit.

Required tools

- Torx screwdriver T20
- Torx screwdriver T10

Releasing the bracket from the projector

1. Locate the IR sensor assembly

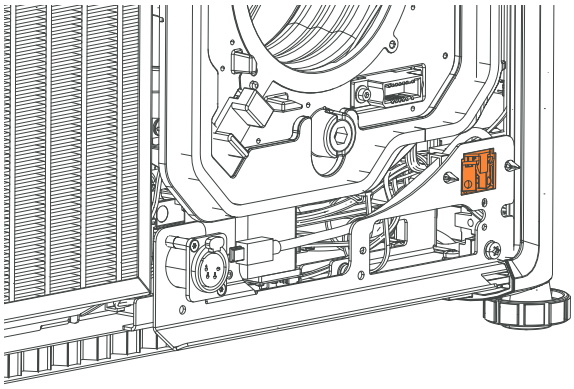

Image 2-6

2. Carefully release the IR sensor board from the holder by press it down and pull out sufficiently enough for the attached cable to be available. Do not pull out the holder from the bracket yet.

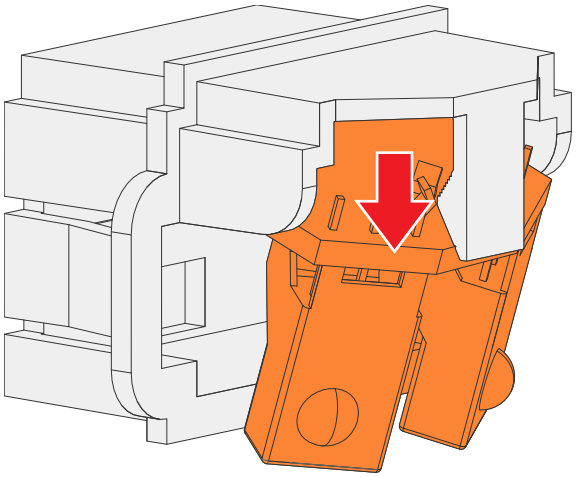

Image 2-7

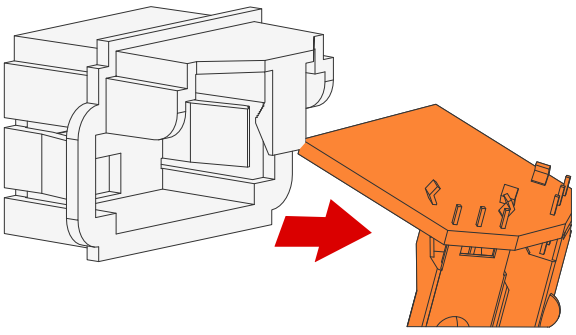

Image 2-8

3. Release the IR sensor cable from the board connector, and remove the board completely.

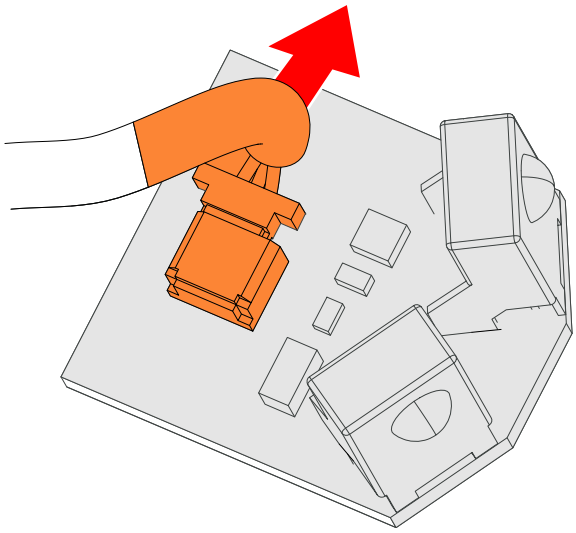

Image 2-9

4. Pull out the IR sensor holder from the bracket. Be aware of the IR sensor cable, and ensure to release it carefully from the IR sensor holder.

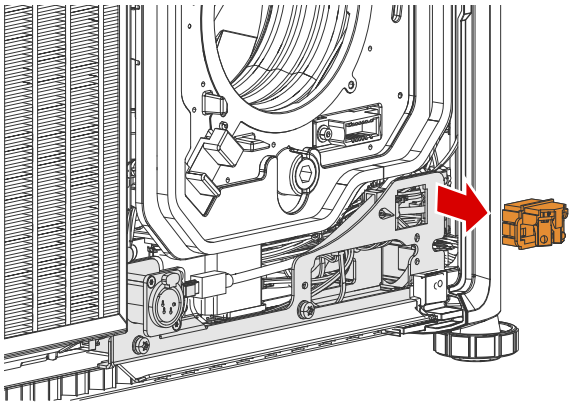

Image 2-10

5. Release the two screws that attach the bracket to the projector, and remove the bracket from the projector.

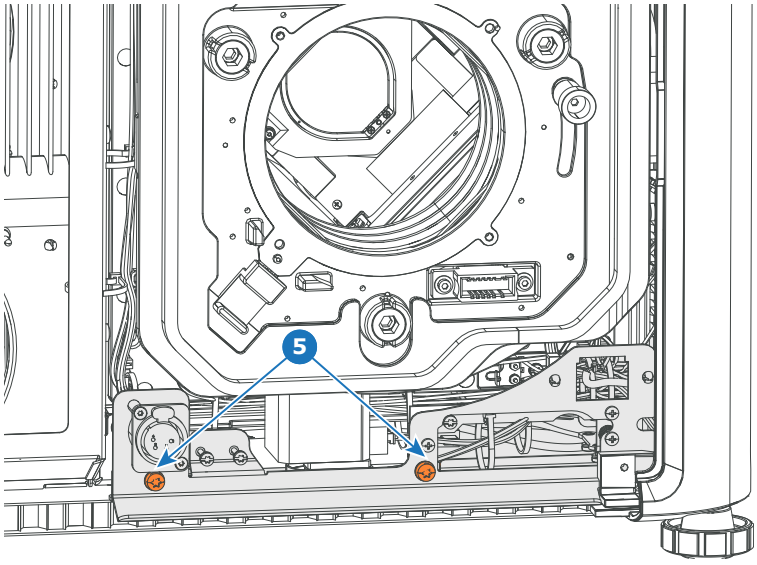

Image 2-11

Note: The bracket will still be attached to the connector and cables as shown. It is not possible to release the cable in an easy way, so the modification must be performed while the bracket is attached to the connector and cables.

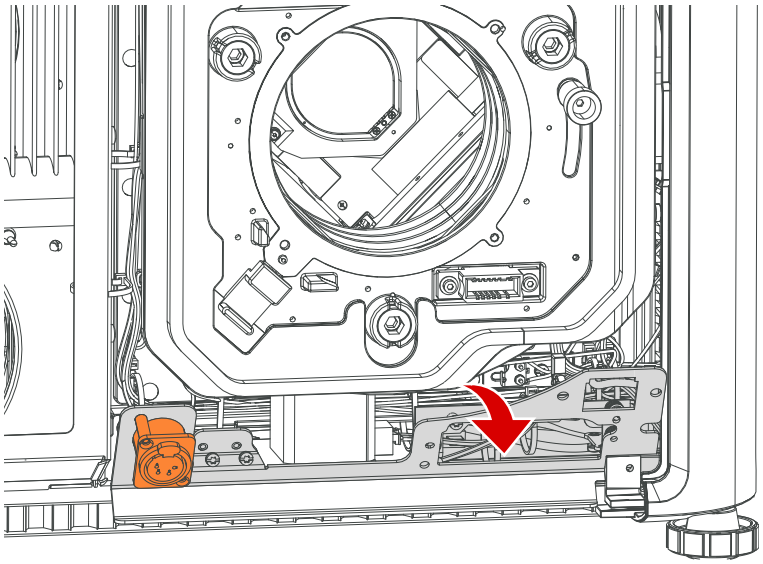

Image 2-12

2.4 Install the distance meter

Required tools

- Phillips screwdriver PH1
- Torx screwdriver T10

Install the camera and distance meter board

1. Use the 3x20 mm screws following the kit to attach the camera to the bracket.

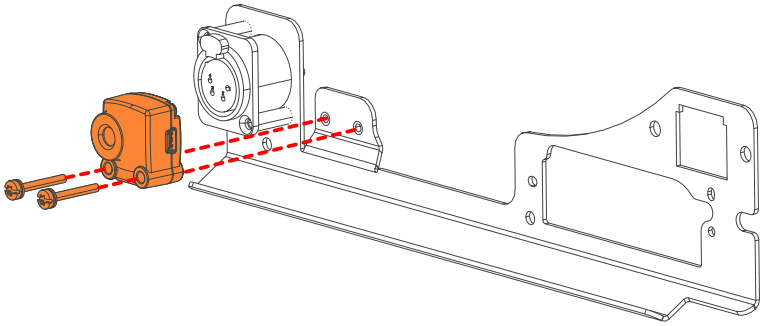

Image 2-13

2. Use the 3pcs of 3x16 mm screws and the 3 pcs of springs to attach the distance module to the bracket.
3. Enter the screws from the front side of the bracket.
4. Apply the spring on to the screws from the rear side of the bracket
5. Enter the screws / springs to the distance module.

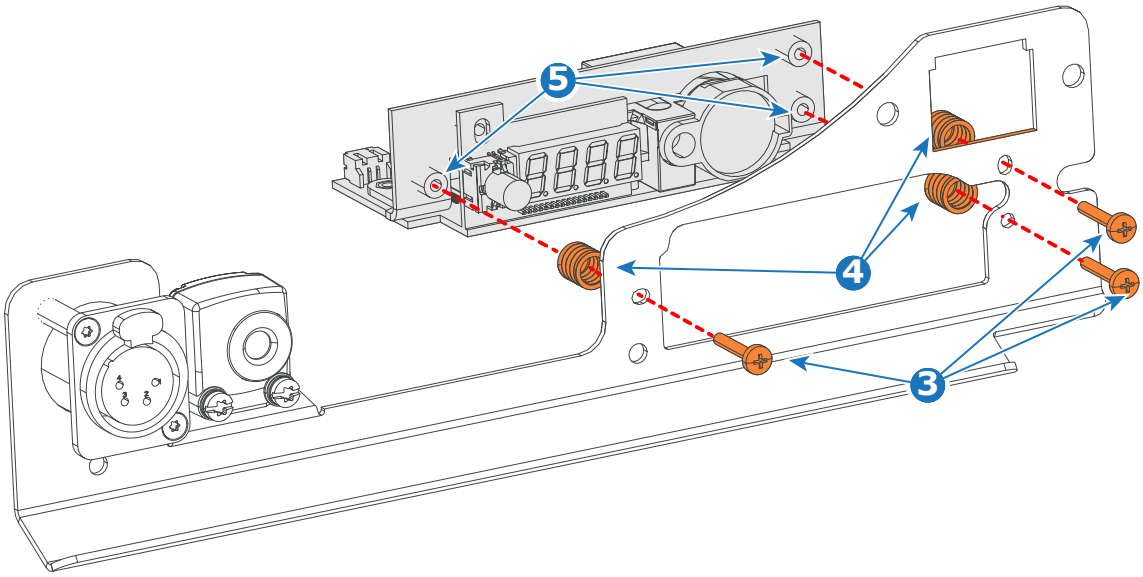

Image 2-14: Installing view 1

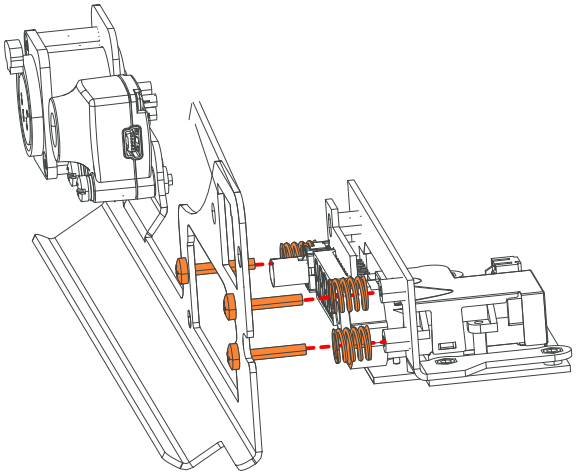

Image 2-15: Installing view 2

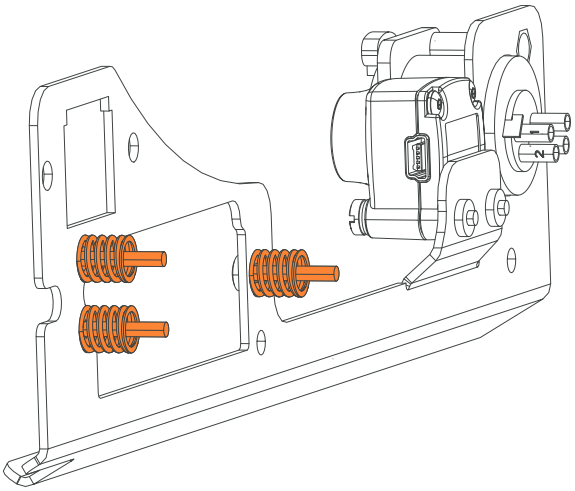

Image 2-16: Installing view 3

6. Tighten the screws until the springs are compressed a bit..

Note: The distance meter must be adjusted after installation.

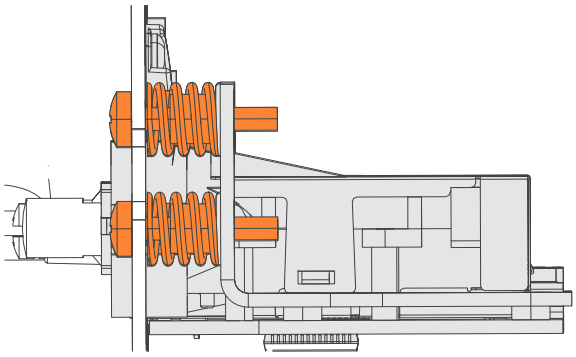

Image 2-17: Camera and distance meter installed, sideview

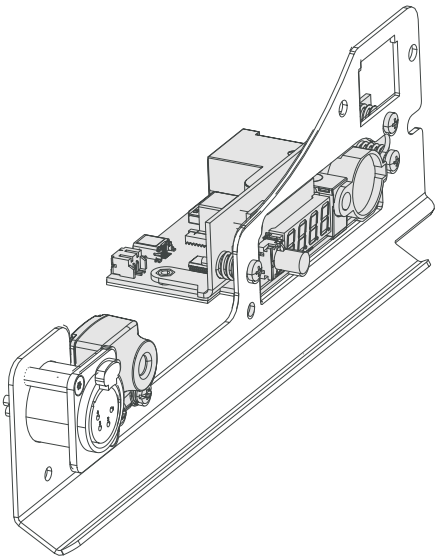

Image 2-18: Camera and distance meter installed

7. Assemble the battery holder to the bracket, using the M3x8 mm countersunk screws.

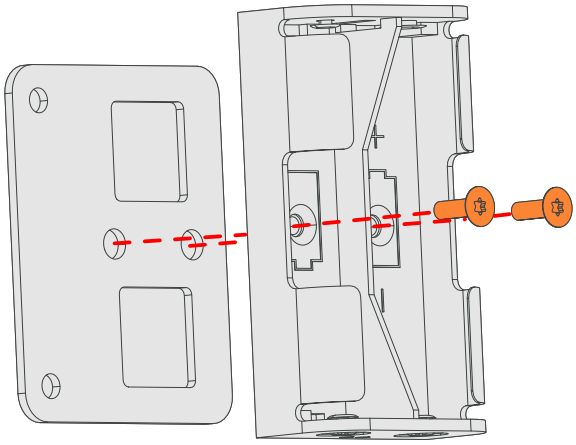

Image 2-19

8. Attach the battery holder to the projector, using the 2 pcs 3x8 mm screw. Tighten the screws.

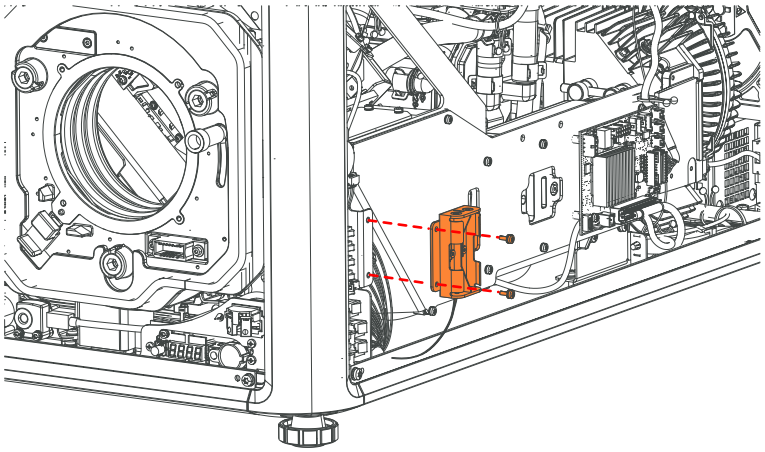

Image 2-20

9. Lead the cable from the battery holder as shown in the illustrations below, and pull the connector out in the front of the projector as far as possible.

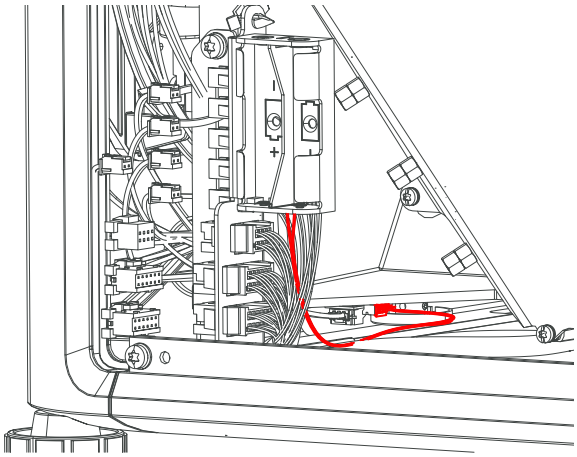

Image 2-21

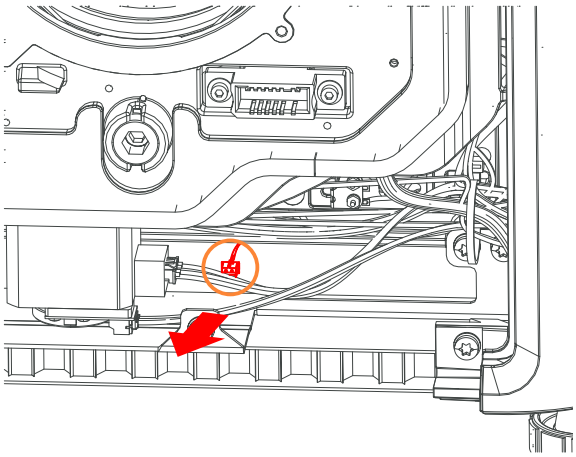

Image 2-22

10. Connect the USB cable end that is located in the projector to the camera.
11. Connect the battery cable
12. Connect the control cable located in the projector to the connector next to the battery input.

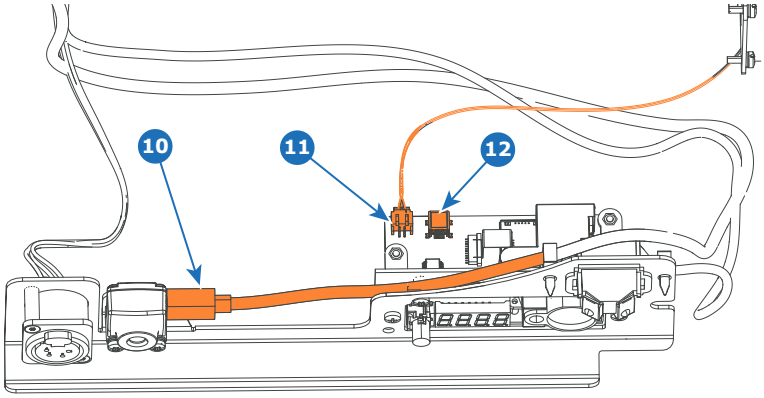

Image 2-23

2.5 Install the assembly to the projector

Required tools

Torx screwdriver T20

Reinstall the distance meter module

1. Insert the module in to its position at and angle, and rotate it vertically when entering the projector.

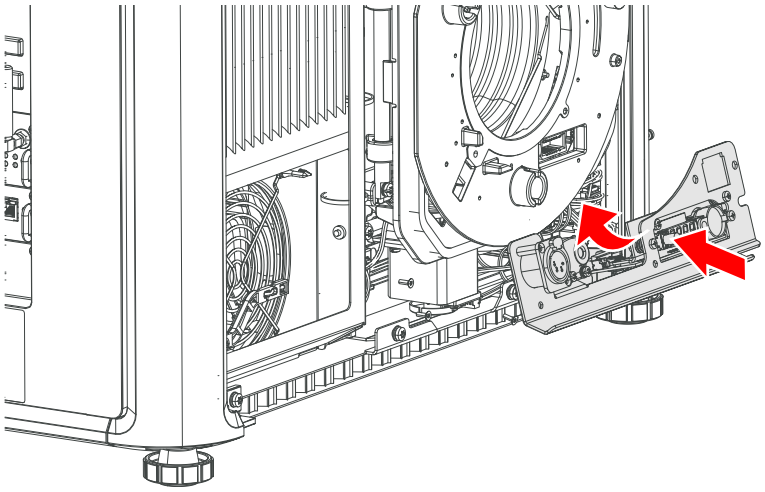

Image 2-24

2. Ensure that the distance module bracket is being positioned behind the attachment point of the lower front profile.

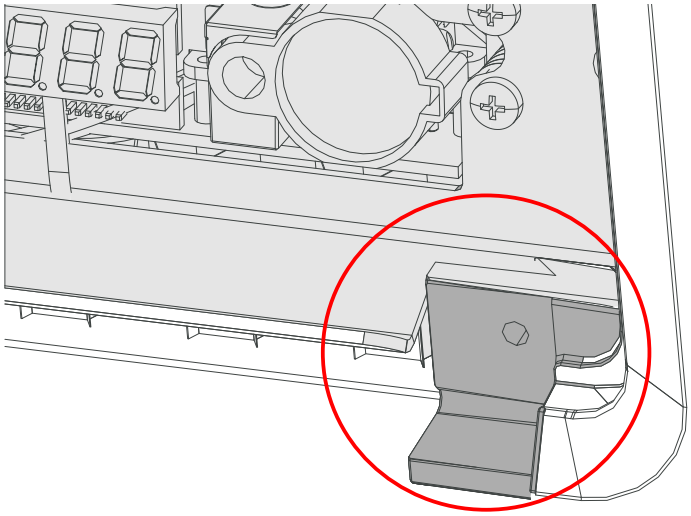

Image 2-25

Note: The module can be tricky to get in to place. It must be prone in to place.

Caution: Ensure that the cables are not being pinched or in another ways being destroyed during the installing operation.

3. Enter the screws that attach the module to the projector, and tighten them.

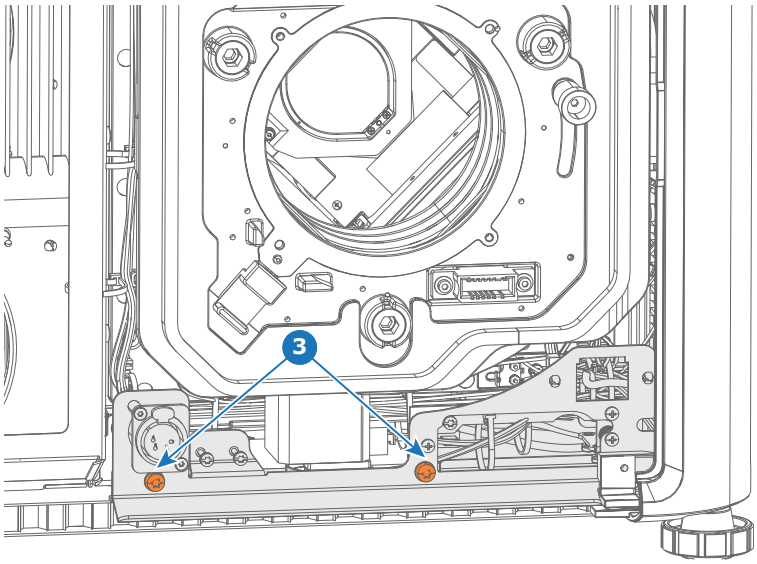

Image 2-26

2.6 Reinstall the IR sensor assembly

Required tools

No tools required.

Reinstall and connect the IR sensor.

1. Enter the cable for the IR sensor out through the IR sensor hole in the bracket

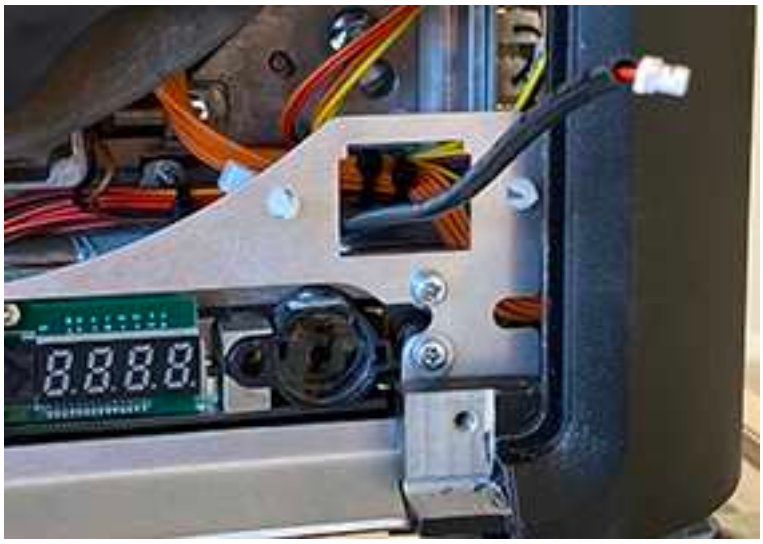

Image 2-27

2. Thread the cable through the slot in the rear of the IR sensor holder.

Image 2-28

3. Connect the cable to the IR sensor board

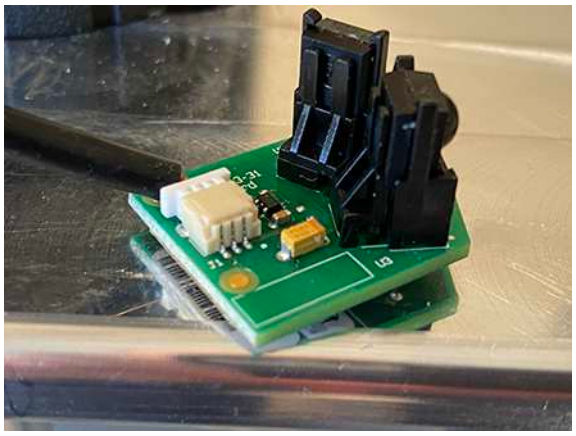

Image 2-29

4. Insert the board in to the holder

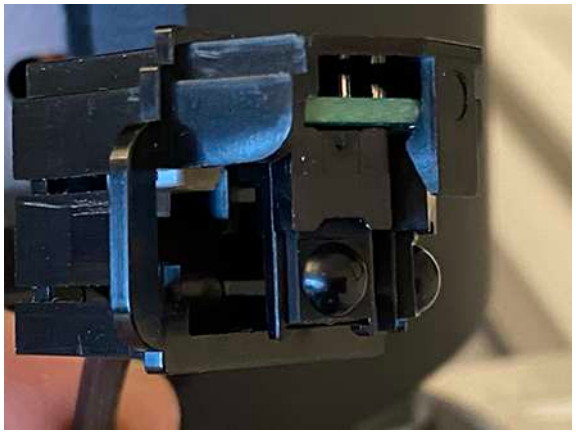

Image 2-30

5. Insert the holder and board in to the distance meter bracket.

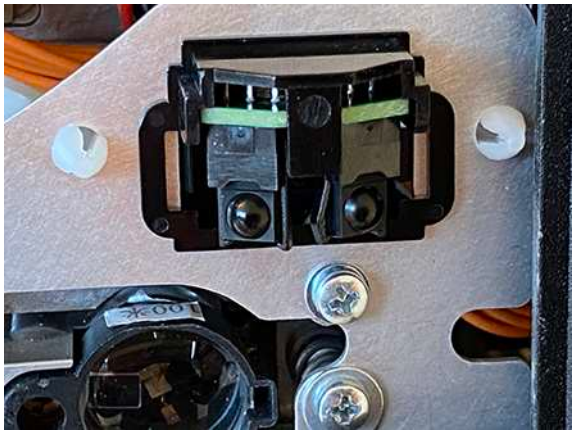

Image 2-31

2.7 Change front cover panel

About removing the front cover panel

The original cover plate is attached to the front cover by locking tabs on the rear side.

The replacement cover is attached to the front by a adhesive layer.

Required tools

No tools required.

Remove the cover panel in the front cover

1. Release the cover plate by pressing directly on the locking tabs from behind. Hold the front cover, and use the thumbs to press on the clips. (Two at a time).

   Caution: The cover can be hard to release, exercise caution when releasing.

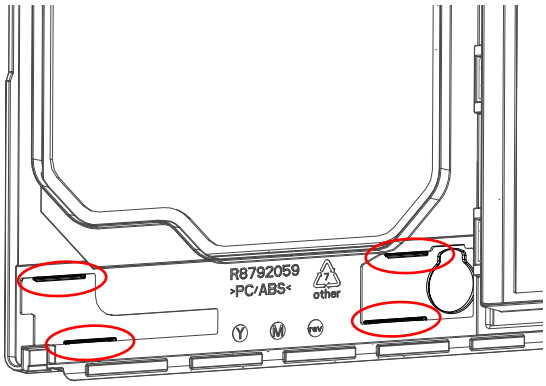

Image 2-32

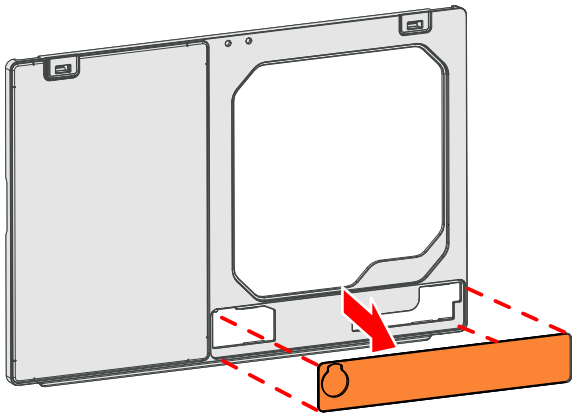

Image 2-33

2. Install the new cover that follows the kit by removing the cover paper on the rear side, align the correct position and push the cover against the front cover.

   Note: Ensure that the cover properly glued to the front cover.

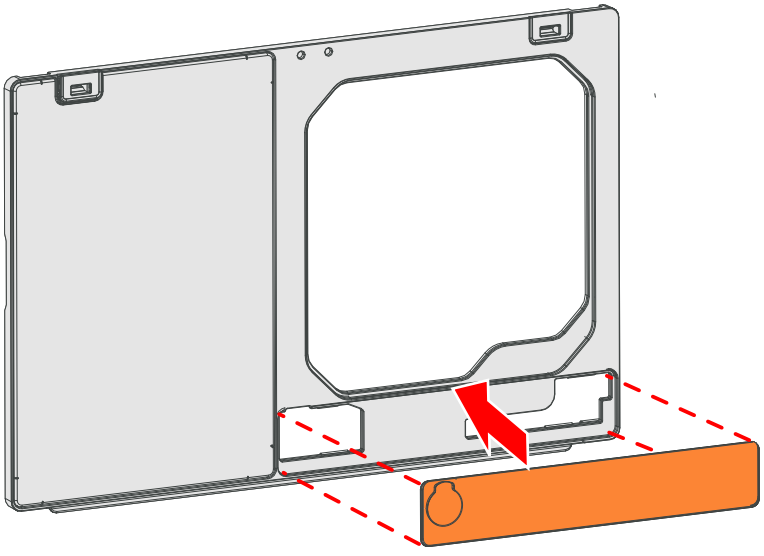

Image 2-34

Upgrading the UDX projector

3

3.1 Installing the distance meter

WARNING: The procedures below may only be performed by Barco trained and qualified technicians.

Required tools

- Allen wrench 3 mm
- Torx screwdriver T10

Required parts

- Distance meter assembly
- Adapted cover plate
- AA batteries (2 pieces, not included in the kit)

Replacing the cover plate

1. Remove the front cover of the projector. See the UDX service manual.
2. Carefully push the old cover plate out of the front cover.

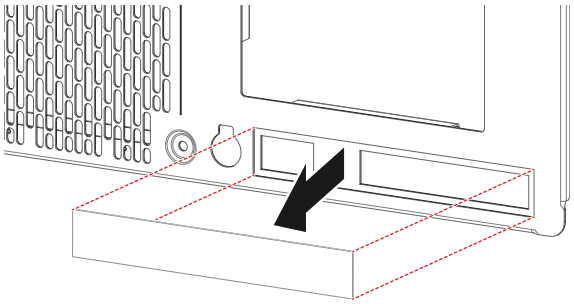

Image 3-1

3. Remove the adhesive from the new adapted cover plate and carefully mount it on the front cover as illustrated.

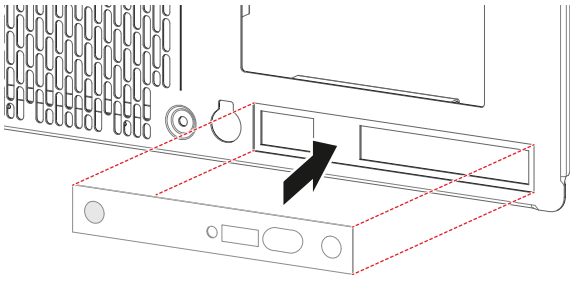

Image 3-2

Note: Make sure the cover is mounted in such a way that the darker IR filter is on the left side and the clear windows are on the right side.

4. Once the cover plate is properly installed, remove the protective foil on the front side.

Mounting the distance meter assembly

1. Mount the distance meter assembly as illustrated. Use a 3 mm Allen wrench.

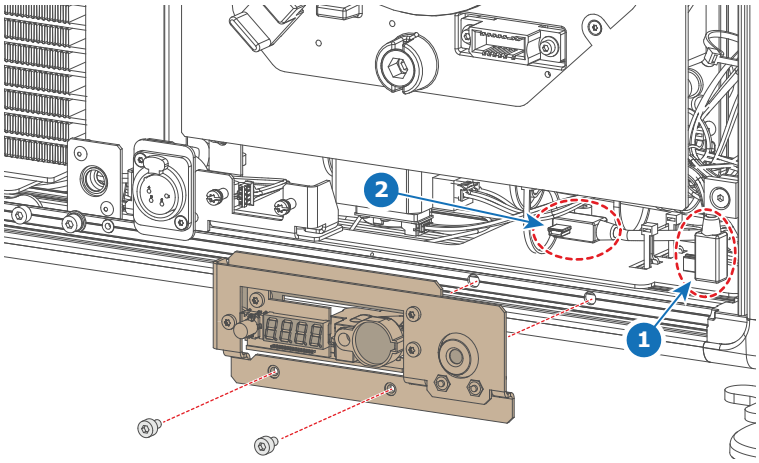

Image 3-3

2. Use the USB cable on the front side of the projector labeled “2” (reference 1, Image 3-3) and plug it in the USB connector of the camera (reference 2, Image 1-1).
3. Use the USB cable on the front side of the projector labeled “3” (reference 2, Image 3-3) and plug it in the USB connector of the distance meter (reference 3, Image 1-1).
4. Mount the front cover with the new cover plate. See the UDX service manual.

The installation of the battery holder and batteries is optional. When installed and with charged batteries the distance meter can be used when the projector is switched-off.

Installing the battery holder (optional)

1. Remove the left cover from the projector. See the UDX service manual.
2. Mount the battery holder as illustrated. Use a T10 Torx wrench to tighten the two screws.

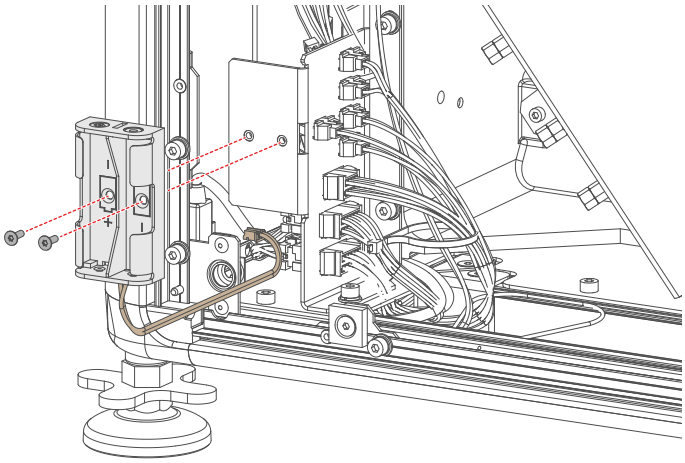

Image 3-4: Mounting the battery holder

3. Connect the plug of the battery holder to the connector of the laser range finder assembly (reference 1, Image 1-1).
4. Place two AA batteries in the battery holder.
5. Mount the left cover of the projector. See the UDX service manual.

After the installation the distance meter needs to be adjusted. See procedure “Adjusting the distance meter”, page 11

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List of tools

Allen wrench 3 mm
Flat screwdriver 5mm
Phillips screwdriver PH1
Torx screwdriver T10
Torx screwdriver T20

Barco Fredrikstad AS | Habornveien 53, N-1630 Gamle Fredrikstad, Norway
Registered office: Barco NV | President Kennedypark 35, 8500 Kortrijk, Belgium
www.barco.com