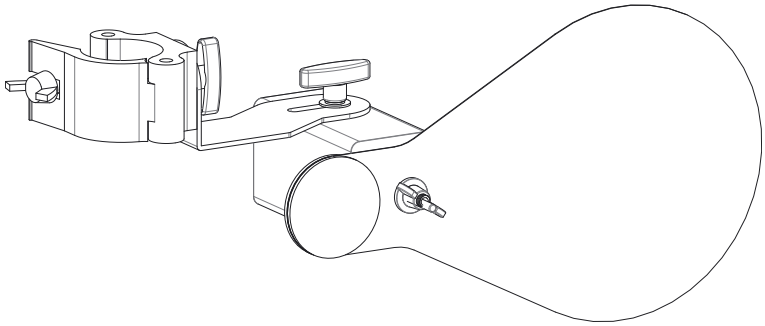
External shutter



Installation manual

Barco NV
Beneluxpark 21, 8500 Kortrijk, Belgium
www.barco.com/en/support
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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External mechanical shutter 1

Purpose of the external shutter

Certain event locations or organizations may require to have a mechanical shutter on UDX and UDM projectors that do not inherently have one. This in order to protect projector optics from the specific event setup.

By mounting the optional mechanical shutter on the rigging frame, you can protect the projector optics.

Overview

- Safety
- Introduction
- Assembling the shutter
- Installing the shutter on a projector
- Activating and configuring the shutter

1.1 Safety

About this chapter

Read this chapter attentively. It contains important information to prevent damage to the external shutter or projector. Ensure that you understand and follow all safety instructions mentioned in this chapter before installing the external shutter. After this chapter, additional “warnings” and “cautions” are given depending on the installation procedure. Read and follow these “warnings” and “cautions” as well.

Installation personnel

This assembly of the frame and installation of the projector must be performed by authorized and qualified technical personnel only.

1.2 Introduction

Content of the kit

Content	Pieces
Shutter motor with XLR cable (60 cm length, 4-pin male connector)	1
Shutter flap	1
Coupler	1
Bracket	1
T-handle (longer)	1
T-handle (shorter)	1
Propeller screw & washer set for shutter flap	1
Ribbed washer	4
Safety wire	1
XLR 4-pin cable splitter (1x male – 2x female)	1

Parts identification

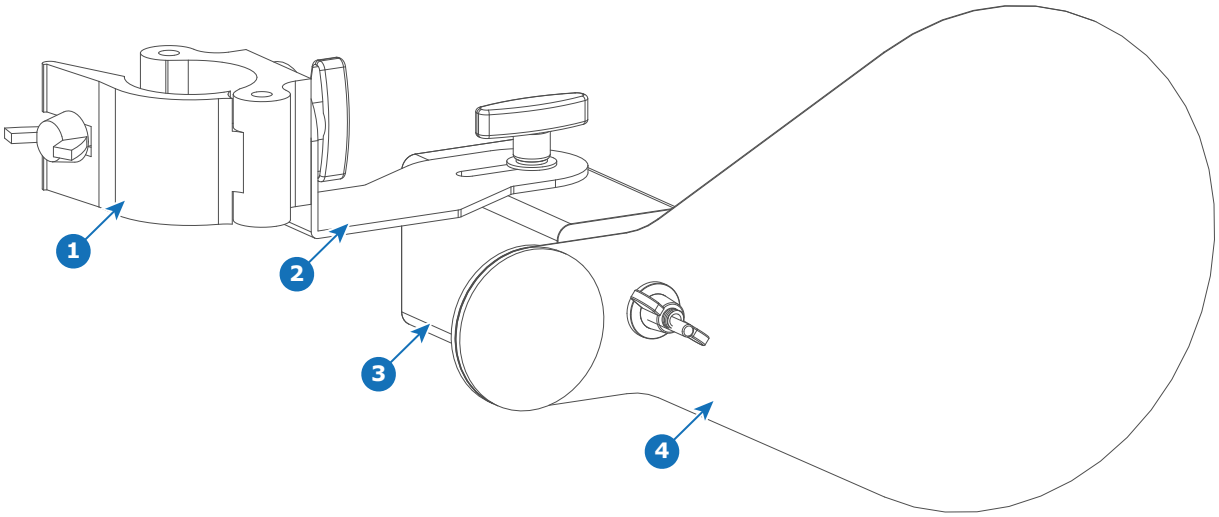

Image 1-1

1 Coupler
2 Bracket
3 Shutter motor
4 Shutter flap

Functionality of the shutter motor

Button	Function
Mode / Setup	Use a long press to enter the setup mode. While in setup mode, the display panel will blink. While in setup mode, use short presses to select the desired mode (1–4).
x100 / OK	A short press sets the digit of the DMX channel in multiples of hundreds. Use a long press on this button to confirm the selected channel or mode.
x10	A short press sets the digit of the DMX channel in multiples of tens.
x1 / Test	While in setup mode, a short press sets the digit of the DMX channel in multiples of one. While **not** in setup mode, this button functions as “test” button. A short press will test the shutter functionality for the chosen mode (open and close).

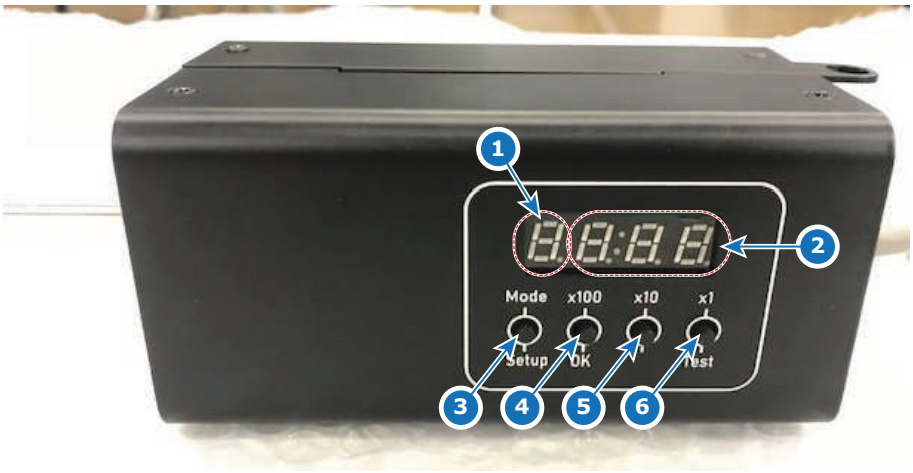

Image 1-2

1 Digit indicates the mode condition
2 Digits indicates the DMX channel
3 Mode / Setup button
4 x100 / OK button
5 x10 button
6 x1 / Test button

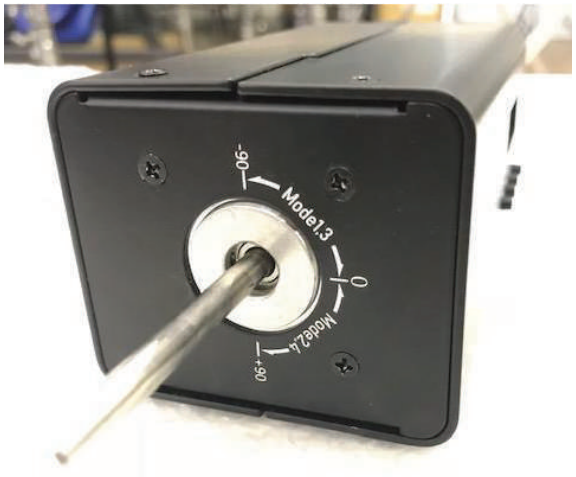

Image 1-3: Modes as depicted on the side of the motor

1 Linear, -90° (counterclockwise)
2 Linear, +90° (clockwise)
3 Switch, -90° (counterclockwise)
4 Switch, +90° (clockwise)

Preferred modes are mode 3 and 4.

1.3 Assembling the shutter

How to assemble the shutter?

1. Combine the coupler and the bracket as illustrated.

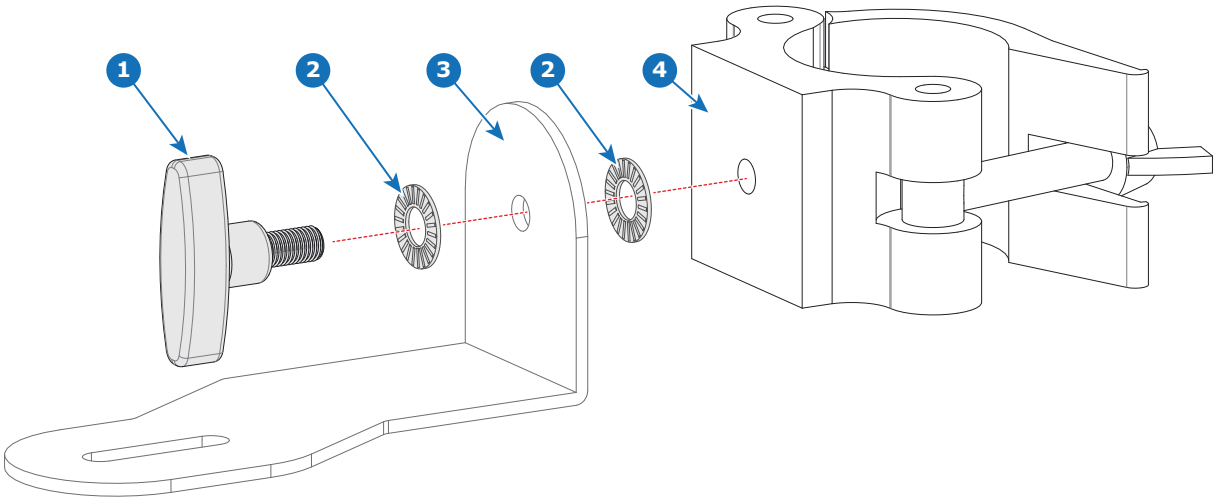

Image 1-4

1 T-handle (shorter one)
2 Washer
3 Bracket
4 Coupler

2. Combine the coupler bracket to the shutter motor as illustrated.

Tip: Don't tighten the wing nuts too hard. Leave some room for manipulation after you have mounted the shutter on the projector.

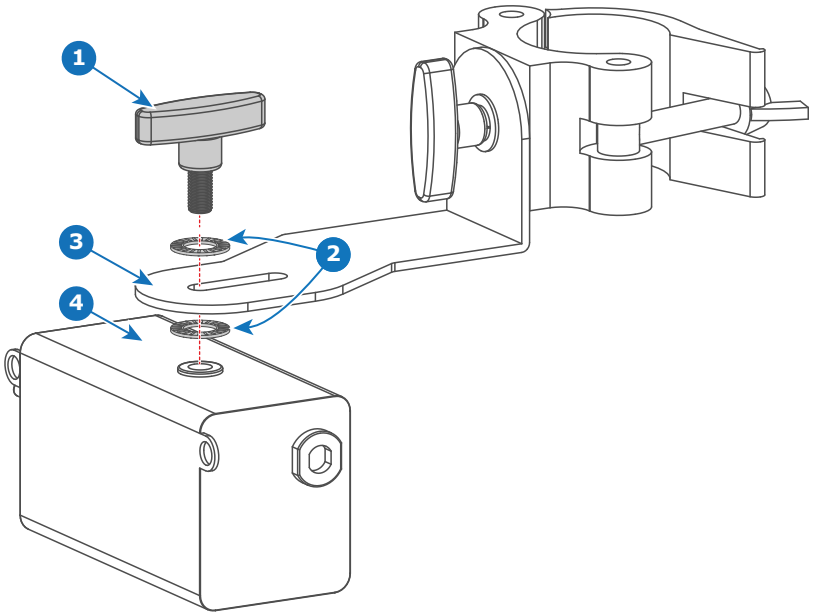

Image 1-5

1 T-handle (larger one)
2 Washers
3 Bracket
4 Shutter motor

3. Split apart and recombine the propeller screw & washer set to capture the shutter flap as illustrated.

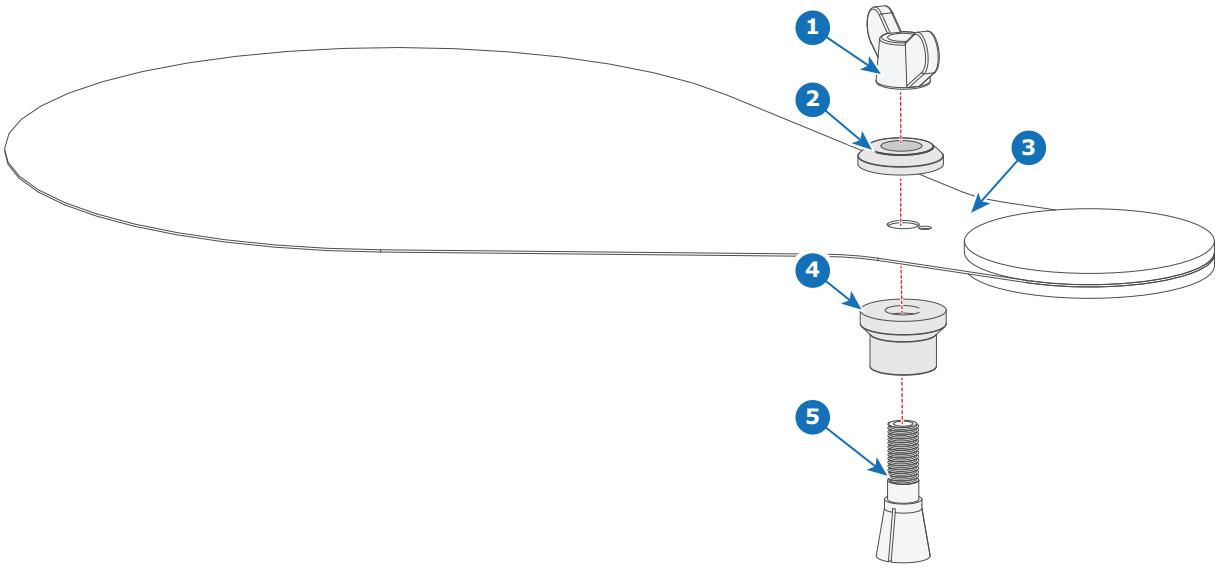

Image 1-6

1 Wing nut
2 Customized washer
3 Flap
4 Customized part
5 Special screw

4. Place the shutter flap onto the rest of the shutter as illustrated and tighten the screw.

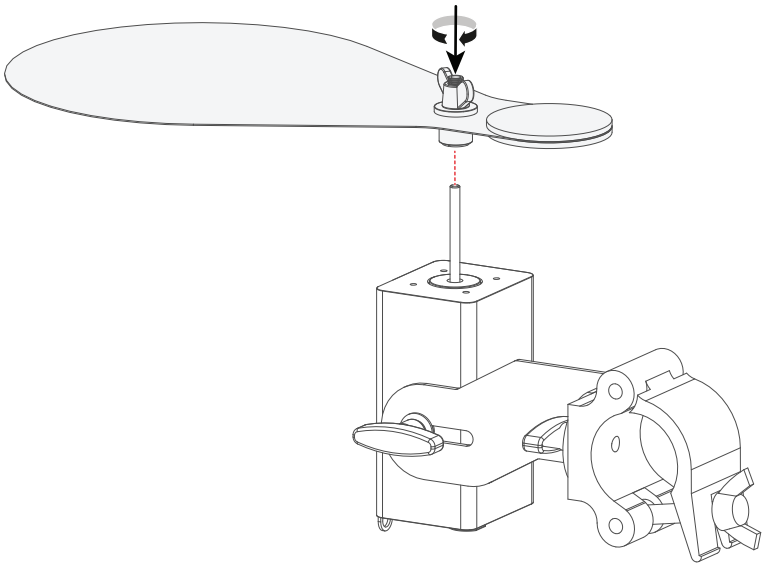

Image 1-7

Tip: The first time it might take a few tries to properly fit the open screw of the flap with the pin of the motor. If it doesn't immediately fit, try disassembling the flap assembly and move the screw by itself on and off the pin of the motor to create a bit of opening.

1.4 Installing the shutter on a projector

Required parts

- External shutter assembly
- Safety cable

How to mount?

1. Make sure the projector is installed in the desired location, in the rigging frame.
2. Make sure the desired lens is mounted in the projector. In case of a lens that projects 90° (e.g. the TLD+ Short Throw lens), make sure the lens point towards the desired direction.
3. Mount the external shutters on one of the frames in the front of the projector, using the following logic:
   - If the lens is a normal straight barrel, mount the shutter on either the top, right or bottom frame, depending on what space is available (see following examples).

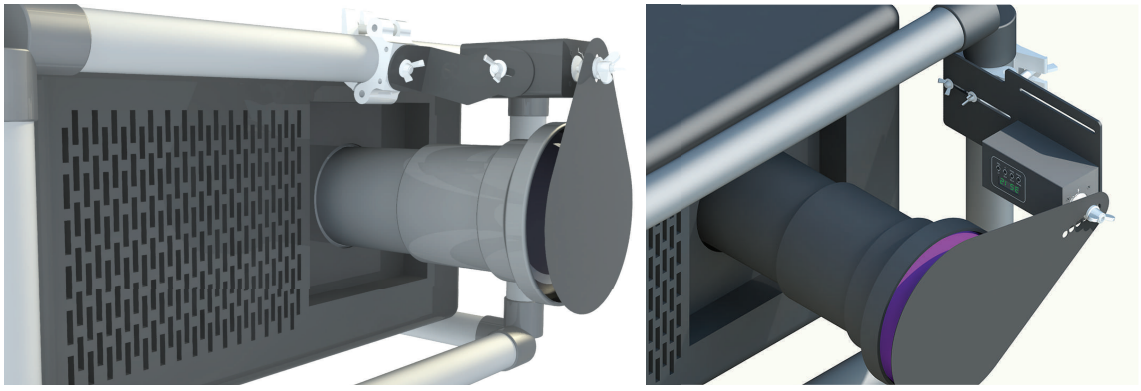

Image 1-8: Examples of shutter mounted on a straight barrel lens

   - If the lens bends 90° towards the left or right side of the projector, mount the shutter on the top or bottom frame of the rigging frame, with the flap towards the lens.

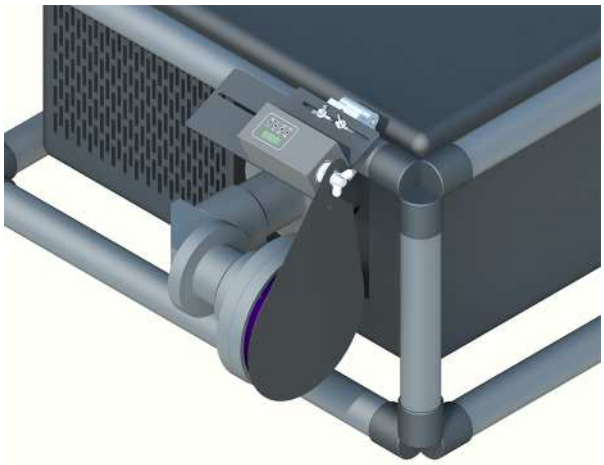

Image 1-9: Example of a shutter mounted to cover a lens bending to the right of the projector

- If the lens is positioned 90° towards the top or bottom of the projector, mount the shutter on the right side frame of the rigging frame, with the flap towards the lens.

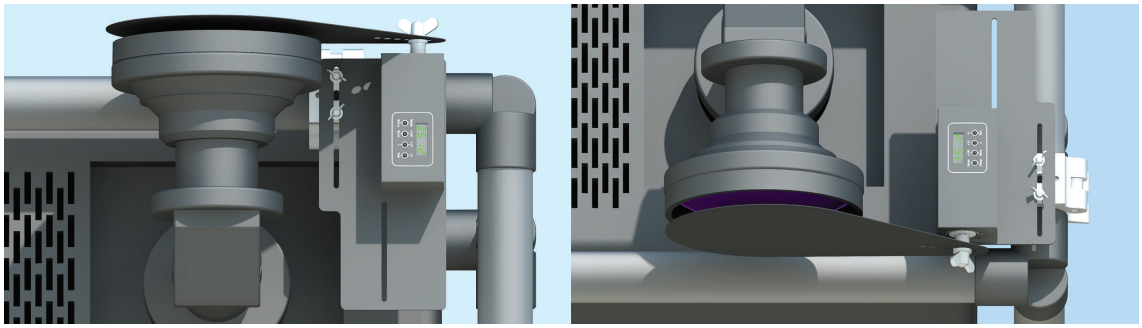

Image 1-10: Examples of shutters mounted to cover a lens bending to the top or bottom of the projector

Tip: When deciding on which frame to mount the shutter, always make sure there is sufficient space to rotate the shutter flap 90° clockwise and/or counterclockwise.

4. Use the wing nut of the shutter flap to reposition the shutter flap if necessary. Make sure that the lens is completely covered by the flap in its neutral state.

   Tip: If necessary, loosen the T-handles of the bracket as well and reposition the shutter as a whole.

5. Mount the safety cable onto the external shutter as follows.
   1. Loop one side of the safety cable with one of the frames of the projector rigging frame.
   2. Click the hook connected to the other side of the safety cable onto the opening on the bottom of the shutter motor (reference 1).

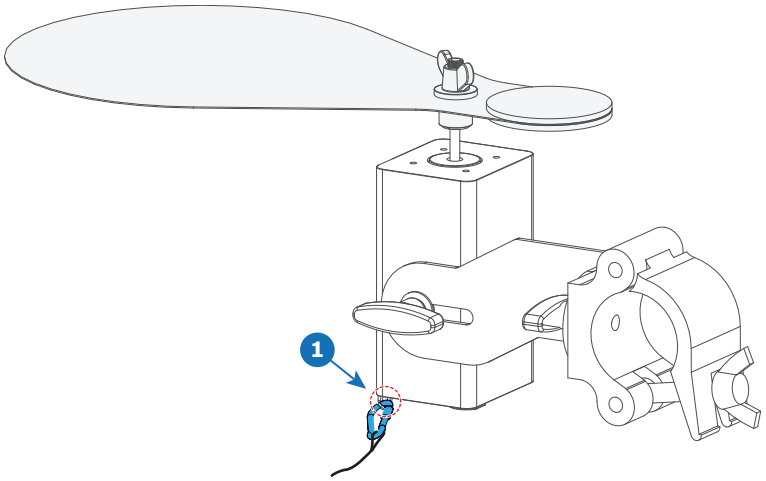

Image 1-11: Location of the safety cable

6. Connect the shutter motor to the front XLR connector of the projector.

Tip: If the front XLR connector is already in use for another device (e.g. the motorized frame), use the XLR splitter delivered in this kit to connect both the shutter and the other device to this XLR connector.

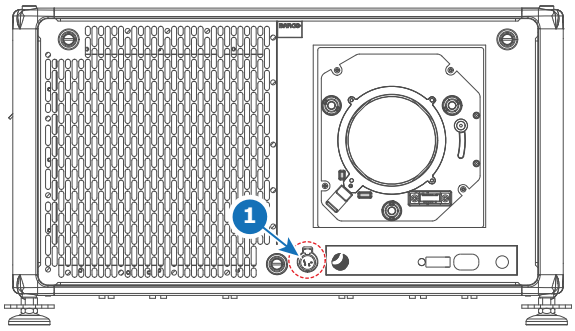

Image 1-12: Example of the location of the XLR connector on the UDX

1.5 Activating and configuring the shutter

How to configure

1. Power on the projector.
2. In the software main menu, select *System Settings* → *Communication* → *DMX*.

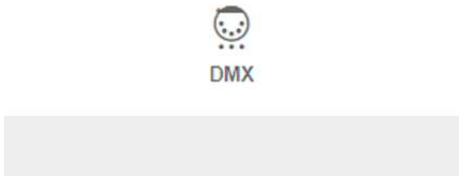

Image 1-13: Communication menu, DMX

The DMX menu is displayed.

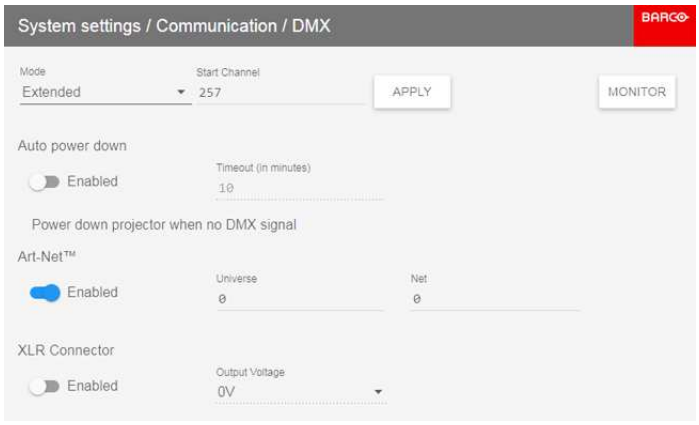

Image 1-14: DMX menu

3. On the bottom of the DMX menu, **Enable** the *XLR connector*.
4. Set the desired *Output Voltage* to 24V.
5. Once powered, use the shutter motor buttons to set the “mode” to either mode 3 (clockwise) or 4 (counterclockwise).

   Once chosen, the Shutter will perform a homing actions, going to the “open” and “close” state of the chosen mode.
6. Check the homing action of the shutter. Check if the lens is fully covered when the shutter is in the “close” status. Also make sure that when the shutter is in the “open” status, the projected images is not covered by the shutter.
7. If necessary, release the wing nuts to reposition the flap according to the shutter status.

   Warning: Make sure the shutter does **not** cover the lens when you are projecting images. This may damage both the shutter and the mounted lens (due to reflected light).

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