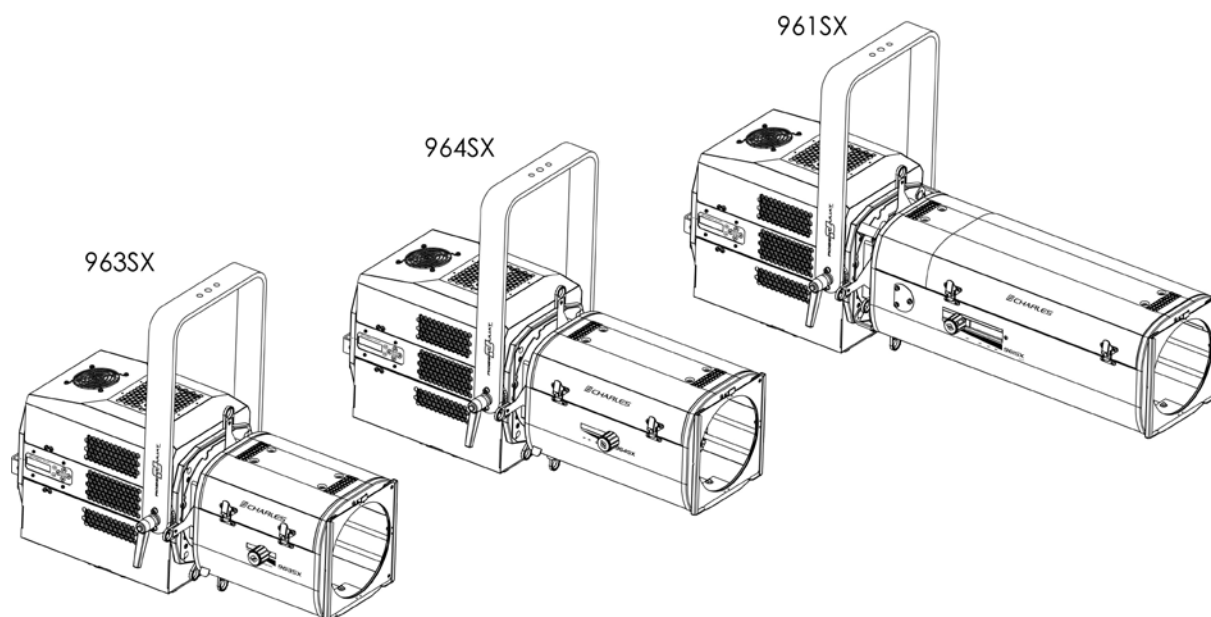


# CHARLES

## LED PROFILES

Manual



### 600 W PROFILES

Model	Standard	North American
8 – 16°	961SX	961CSX
29 – 50°	963SX	963CSX
15 – 40°	964SX	964CSX

V2  
FIRMWARE: V2.09

DATE : 27/06/22



**ROBERT JULIAT**

### DN41159400-A (EN)

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[www.robertjuliat.com](http://www.robertjuliat.com)

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# 1 User's instructions

## GENERAL INSTRUCTIONS

1. Not for residential use.
2. These fixtures must only be serviced by a qualified technician.
3. In addition to the instructions indicated on this page, relevant health and safety requirements of the appropriate EU Directives must be adhered to at all times.
4. This fixture is in compliance with section 17 - Lighting appliance for theatre stages, television, cinema and photograph studios. Standards NF EN 60598-1, NF EN 60598-2-17, Low Voltage Directive 2014/35/UE & EMC Directive 2014/30/UE.
5. This fixture is rated as IP20, and is for indoor use only.

## FIXTURE

6. Ensure fixture is correctly mounted on an appropriate support.
7. Protection screens and lenses must be replaced in the event of any damage, such as cracks or deep scratches, since these might reduce performance.
8. When hung or flown the fixture must be secured by an additional hanging accessory (such as a safety cable or bond) of suitable length.
9. Safety bonds or cables must be securely attached to the back of the fixture and be as short as possible, or rolled up as necessary, to minimise travel distance should the fixture be dislodged.
10. Movable accessories (scroller, etc.) must also be secured with a suitable safety cable or bond at the front of the fixture.
11. The combined weight of both the fixture and the accessories must be considered when choosing the load-bearing capability of safety cable or bond.
12. Do not open lighting fixture when the source is on.
13. **WARNING:** LED source become hot during use. Allow fixture to cool before servicing.
14. Do not tamper with design of fixture nor any of its safety features.
15. Tighten electrical mains cable connections regularly and replace with one of identical specification if damaged.
16. Use only with correct power supply.

## VENTILATION

17. Keep well away from flammable material.
18. Not for outdoor use. Do not cover. Do not permit fixture to get wet.
19. To avoid overheating, do not obstruct air vents.
20. Ensure any cooling fans are in correct working order. If fans are not working, turn fixture off immediately and service as necessary.

## CLEANING

21. Do not touch the LED source with your fingers.
22. To clean the optical parts, use a soft cloth in combination with distilled water or isopropyl alcohol recommended for coated optics. Do not use any cleaning product that contains solvents or abrasives, as these can cause surface damage. Dry with a soft lint-free cloth.
23. Regularly remove dust with a soft lint-free cloth.
24. If the fixture has filters, they must be cleaned frequently.


## POWER SUPPLY

25. Disconnect from the mains before servicing.
26. Mains connection only. Do not connect to "electronic output" such as dimmer.
27. Ensure power supply circuit breakers, always remain accessible.

## PLEASE NOTE

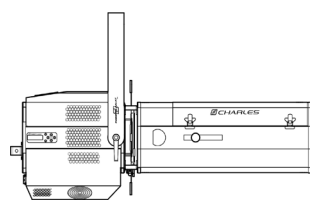
This product has been built to conform to European standards relating to professional lighting equipment. Any modification made to our products will void the manufacturers' warranty.

**Risk group 2**

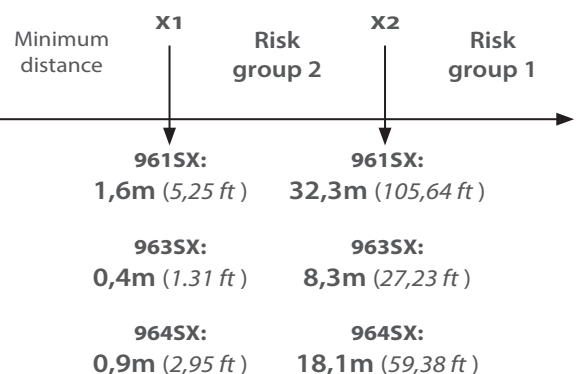


**CAUTION:** Possibly hazardous optical radiation emitted from this product.  
Do not stare at operating lamp.  
Maybe harmful to the eye.

**Group risk 2. Luminaires should be positioned so that prolonged staring into luminaire at a distance closer than 32,3m (961SX), 8,3m (963SX) & 18,1m (964SX) is not expected.**

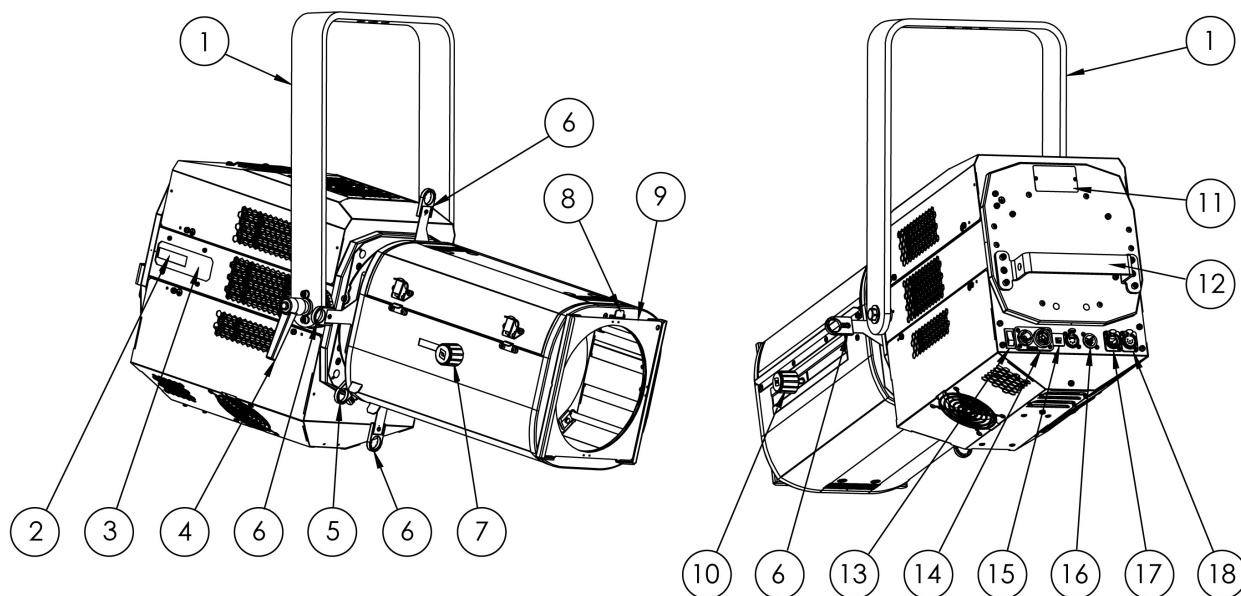


## Photobiological safety according to EN62471



## 2 Presentation

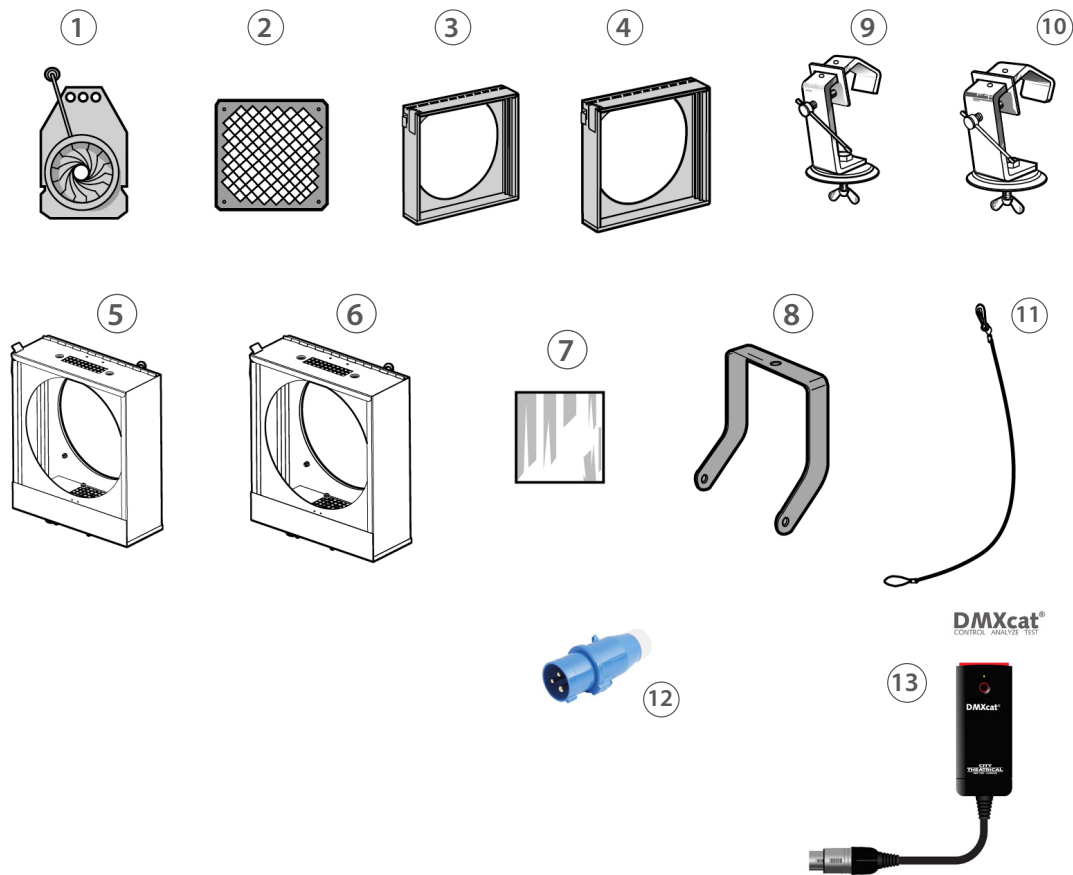
### 2.1 Functions



#### Functions

- |   |                                   |
|---|-----------------------------------|
| 1. Hanging yoke                             | 11. Identification plate          |
| 2. Local display                            | 12. Rear handle                   |
| 3. Control board                            | 13. Power switch                  |
| 4. Tilt locking handle                      | 14. Power connectors (IN and OUT) |
| 5. Shutter locking system                   | 15. Thermal breaker               |
| 6. Shutters                                 | 16. Data connectors (IN and OUT)  |
| 7. Focus adjustment                         | 17. Ethernet connector (RJ45)     |
| 8. Front slot locking system                | 18. Auxiliary (XLR 7)             |
| 9. Front slot for accessories and gel frame |                                   |
| 10. Zoom adjustment                         |                                   |





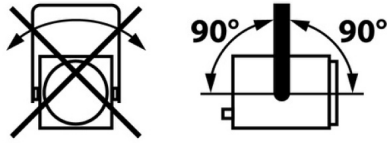
	Reference	Description
1	IWSX755	Drop-in iris (monoplane) with holder
2	G1000	215x215mm safety grid
3	CAV700A	Double slot front cassette for 215x215mm accessories
4	CAV700AJ	Double slot front cassette for 245x245mm accessories
5	RPF960	Front extension cassette for 215x215mm accessories with XLR7 fan (recommended for dark colours on 960SX)
6	RPF960E	Front extension cassette for 245x245mm accessories with XLR7 fan (recommended for dark colours on 960SX)
7	VD120	120x120mm frosted glass
8	FCD700	Angled yoke
9	876	Hook clamp 40x10mm with 28mm M10 screw for Ø35 to 50mm pipes - SWL: 50Kg
10	880	Hook clamp 40x10mm with 28mm M10 screw for Ø50 to 63mm pipes - SWL: 50Kg
11	CS2	Safety cable Ø3mm L= 600mm - SWL: 75 Kg
12	PCP1716A	16A blue 2P+E 6h IEC60309 power connector
13	DMXcat	Bluetooth DMX/RDM Multifunction test tool - City Theatrical DMXcat®

# 3 Set-up

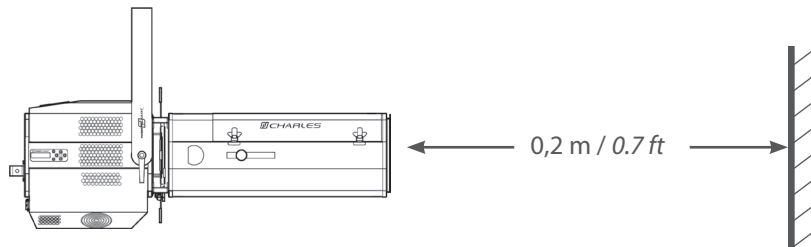


## 3.1 Mechanics

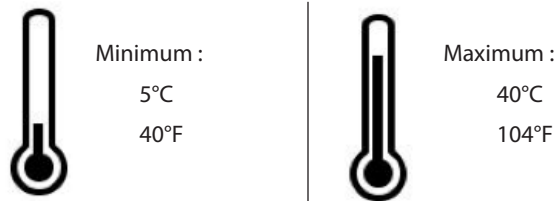
### 3.1.1 Operating positions



### 3.1.2 Minimum distance between a flammable material and the lighting unit



### 3.1.3 Instructions for use

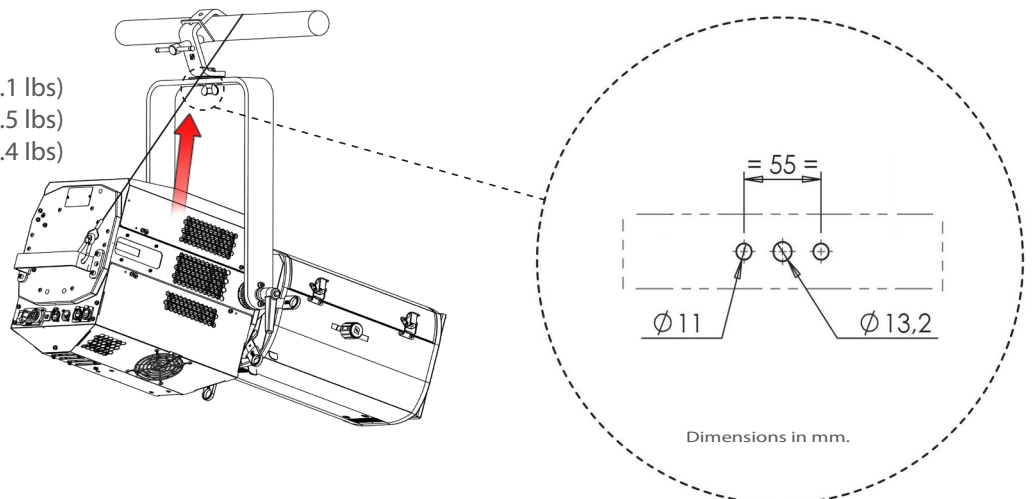


IP20 - Indoor use only

### 3.1.4 Hanging

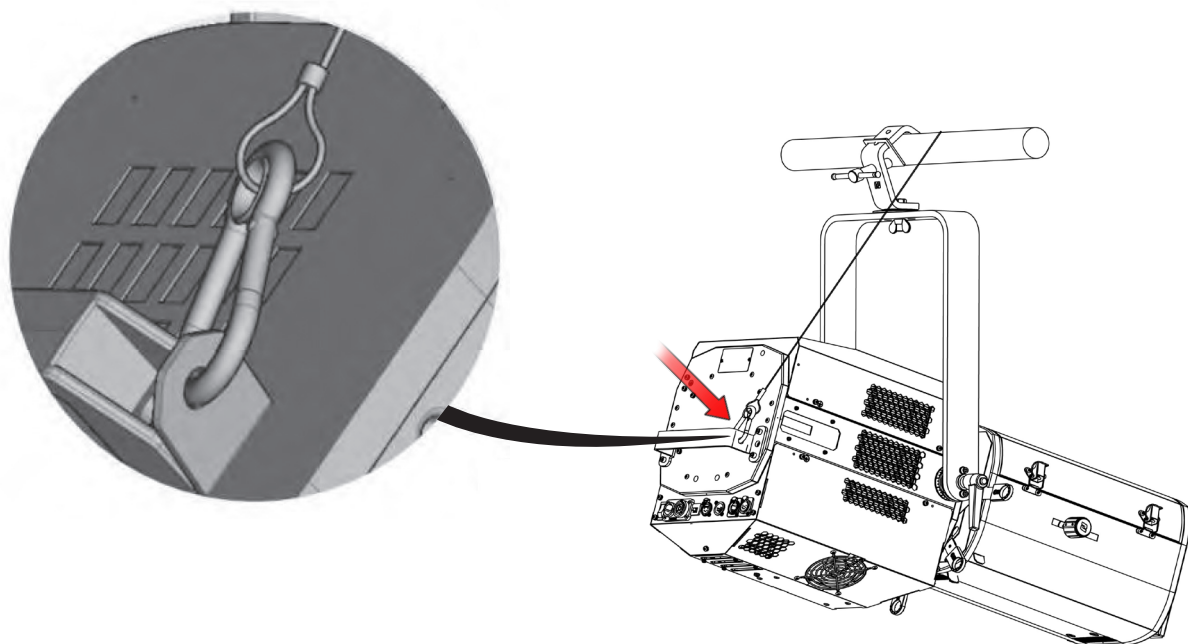
- Ensure fixture is correctly mounted on the appropriate support.

- Net weight for  
963SX: 30.5 Kg (67.1 lbs)  
964SX: 32.5 Kg (71.5 lbs)  
961SX: 35.2 Kg (77.4 lbs)



### 3.1.5 Safety cable

- When hung or flown, the fixture must be secured by an additional hanging accessory (such as a safety bond or cable) of suitable length.
- The combined weight of both the fixture and the accessories must be considered when choosing the load-bearing capability of safety cable or bond.
- Safety cables or bonds must be securely attached to the back of the fixture and be as short as possible, or rolled up as necessary, to minimise travel distance should the fixture be dislodged.






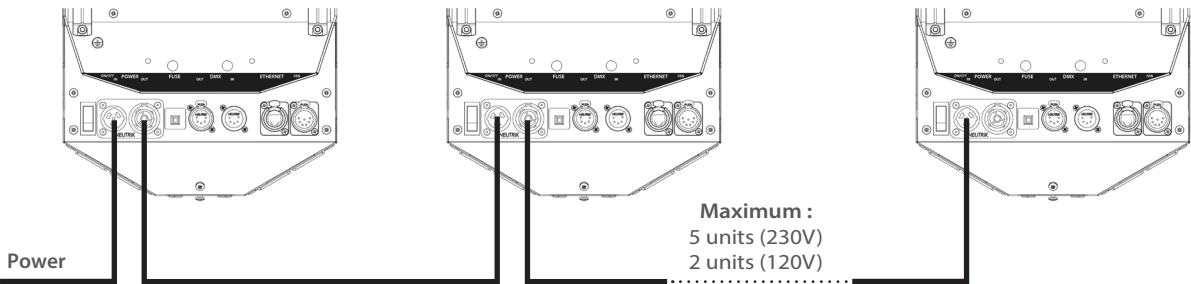
### 3.2 Electrical information


#### 3.2.1 LED source



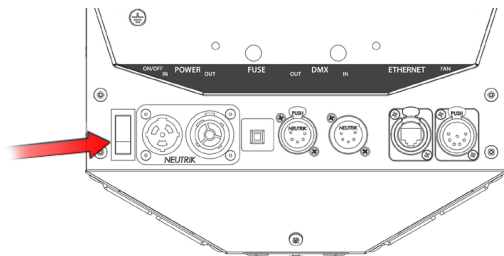
**Never touch or scratch the LED surface.**  
See section 6.1.6 LED cleaning procedure, if cleaning is necessary.

#### 3.2.2 Power supply

Power supply			
Voltage	Frequency	Input power	Connectors
100 → 240 V	50-60 Hz	2.8 A / 640 W @ 230V 5.5 A / 649 W @ 120V 6.7 A / 655 W @ 100V	Neutrik powerCON TRUE1 TOP Input : ref. NAC3PX-TOP
 <ul style="list-style-type: none"> <li>• Class 1 product. <b>This luminaire must be earthed.</b></li> <li>• Must be connected directly to AC power. <b>Do not connect to dimmer power.</b></li> <li>• Automatic mains voltage detection.</li> <li>• <b>Maximum power available on output: 700 W</b></li> </ul>			
<p><b>Daisy chain (with delivered power cable):</b></p>  <p>Maximum : 5 units (230V) 2 units (120V)</p>			

Power cable					
Power cable	Connector	Mains plug	Cable type	Cable length	Wiring
1	Standard version	CEE7/7	3G1.5 H07RNF	3 m 9.8 ft	Live: Brown Neutral: Blue Ground: Yellow/Green
2	North American version		-	14AWG SJ TYPE (UL/CSA)	1.5 m 4.9 ft
					

Power ON



3.3 DATA

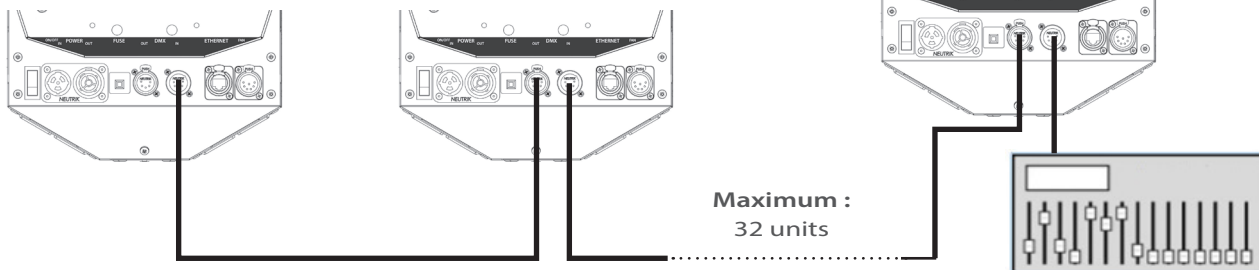
3.3.1 DMX 512-A / RDM

Protocol	Input connector	Output connector
USITT DMX 512-A RDM	XLR 5-pin	XLR 5-pin

DATA connectors

PIN #	DMX	Description	
1	Shielding	Foil & Braided Shield	
2	DMX (-)	1 <sup>st</sup> conductor of 1 <sup>st</sup> twisted pair	
3	DMX (+)	2 <sup>nd</sup> conductor of 1 <sup>st</sup> twisted pair	
4	Not used	1 <sup>st</sup> conductor of 2 <sup>nd</sup> twisted pair	
5	Not used	2 <sup>nd</sup> conductor of 2 <sup>nd</sup> twisted pair	

Daisy chain:



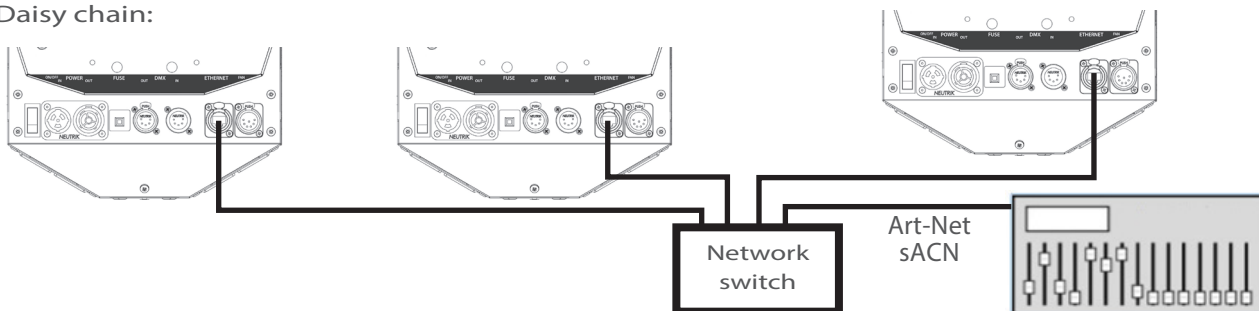
**Integrated terminal plug:**

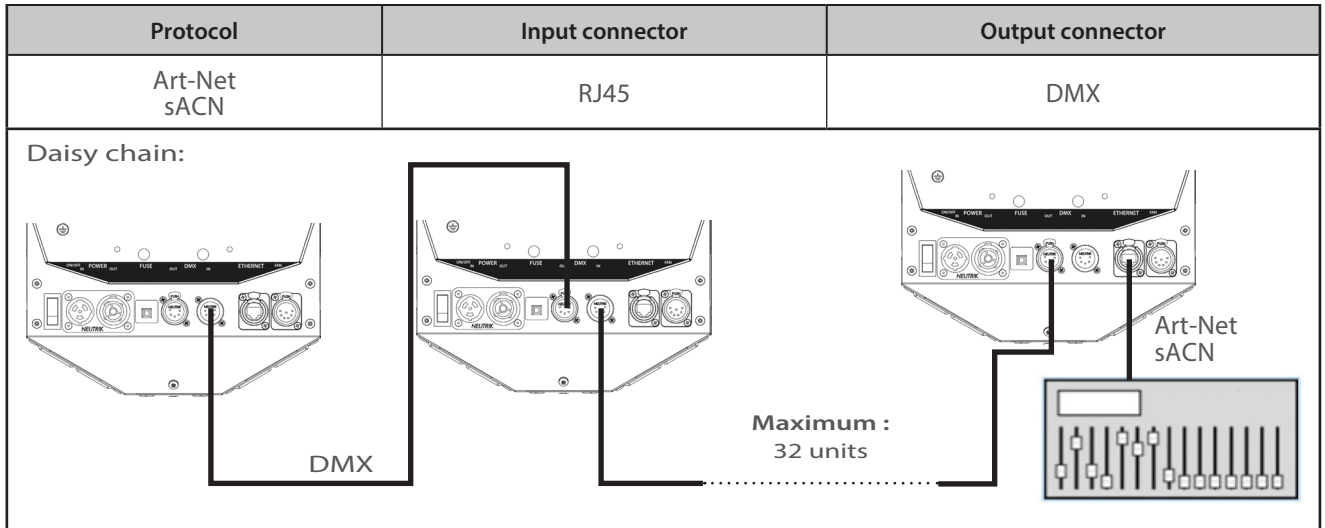
If no XLR connector is detected on DMX OUT connector, a 120 Ω terminal plug is automatically activated. Additional terminal plug on the last unit is not necessary.

3.3.2 Art-Net / sACN

Protocol	Input connector	Output connector
Art-Net sACN	RJ45	-

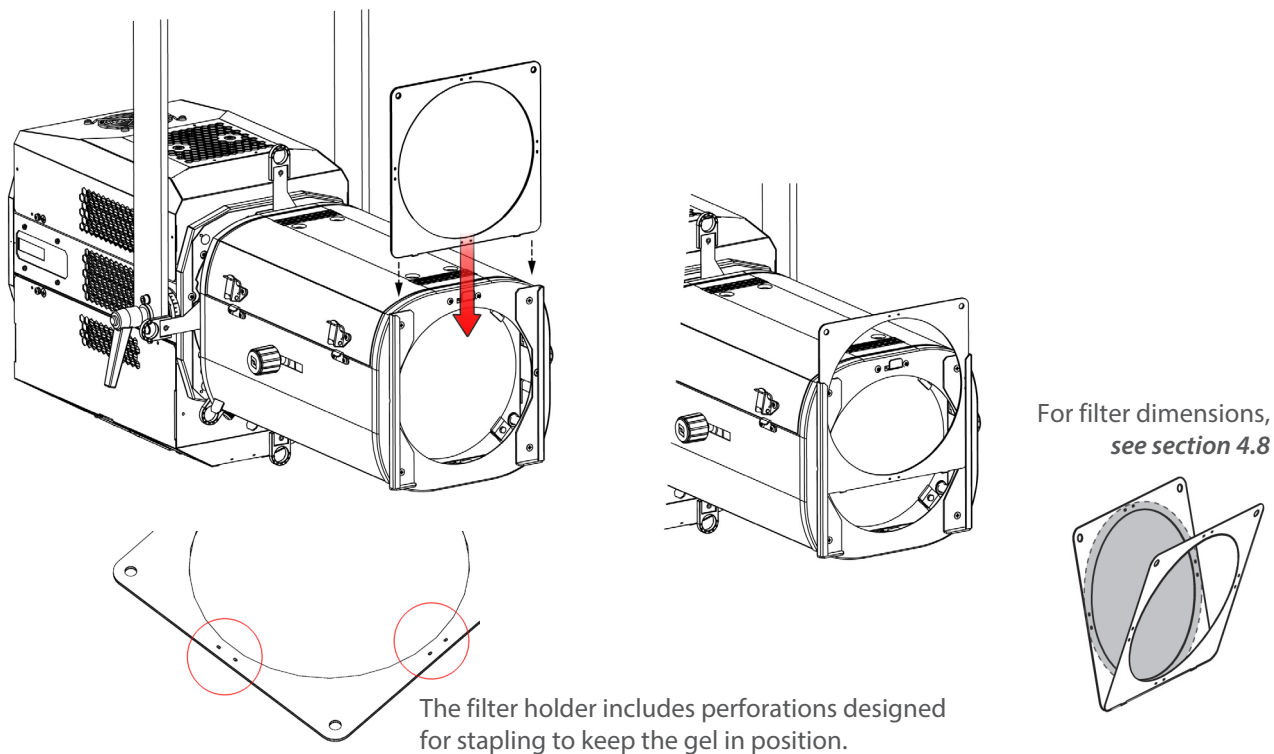
Daisy chain:





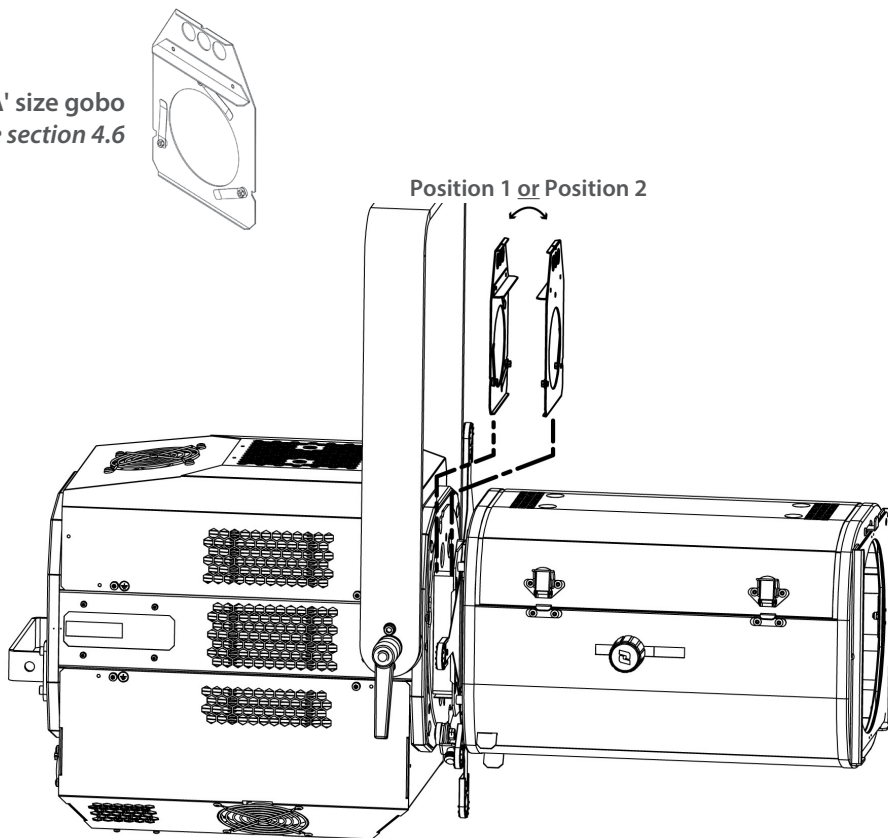
### 3.4 Accessories

#### 3.4.1 Front filter holder

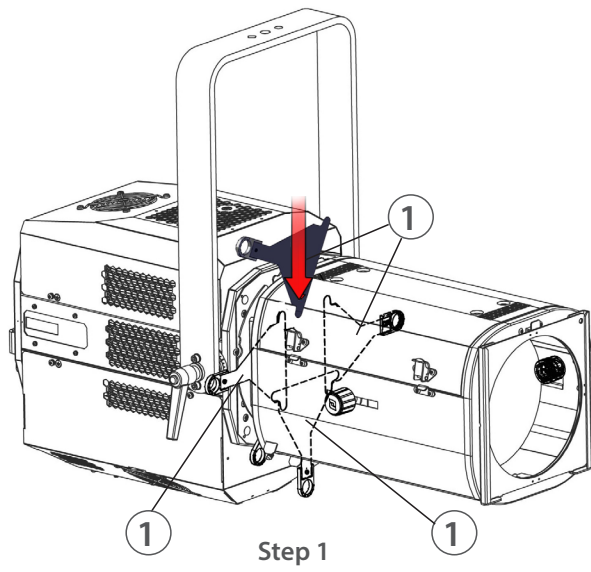


#### 3.4.2 Gobo holder

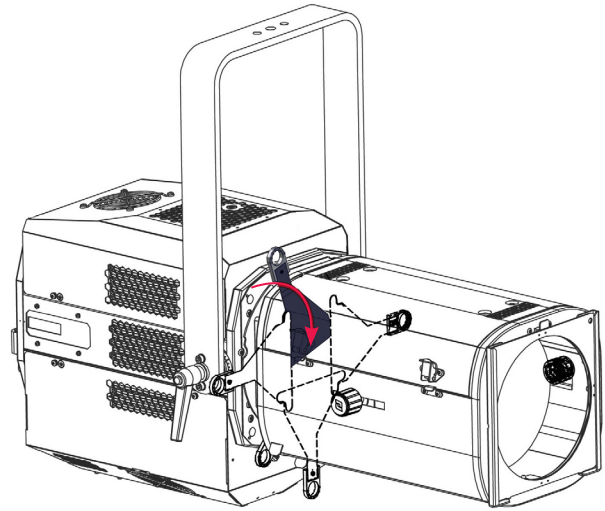
'A' size gobo  
Dimensions, see section 4.6



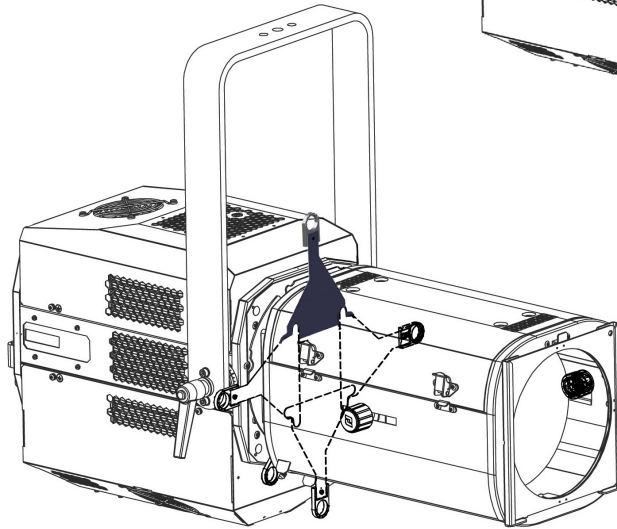
### 3.4.3 Shutters



Step 1



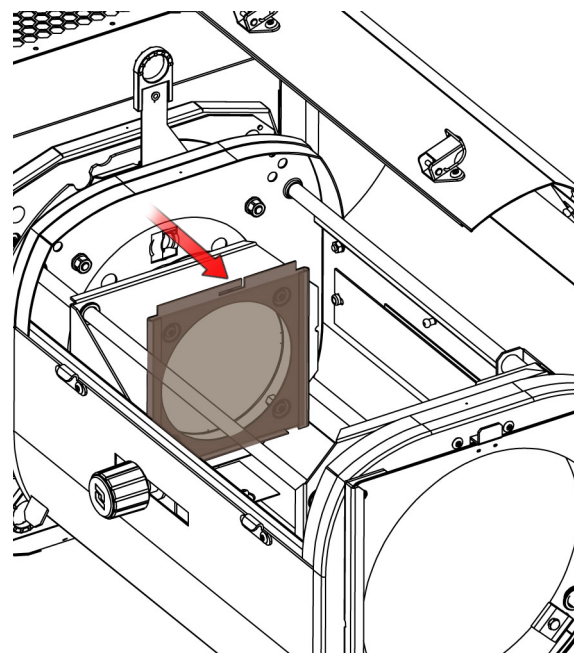
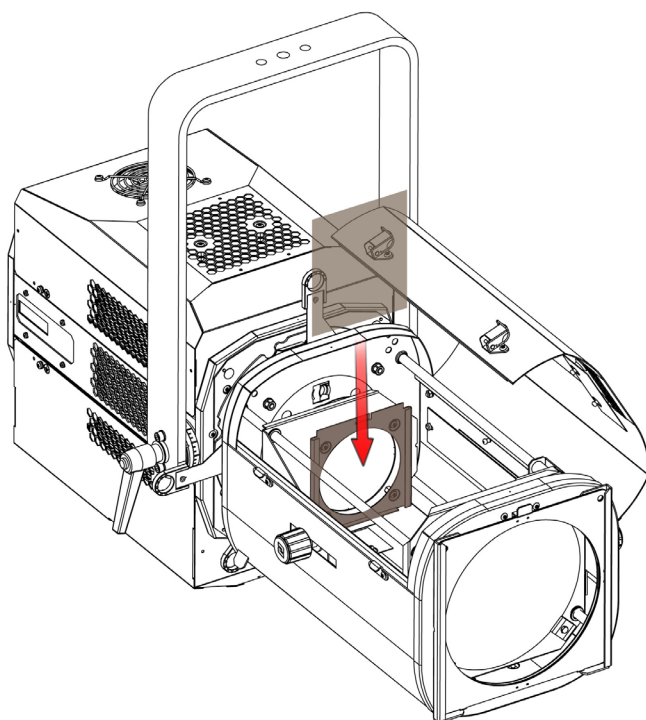
Step 2



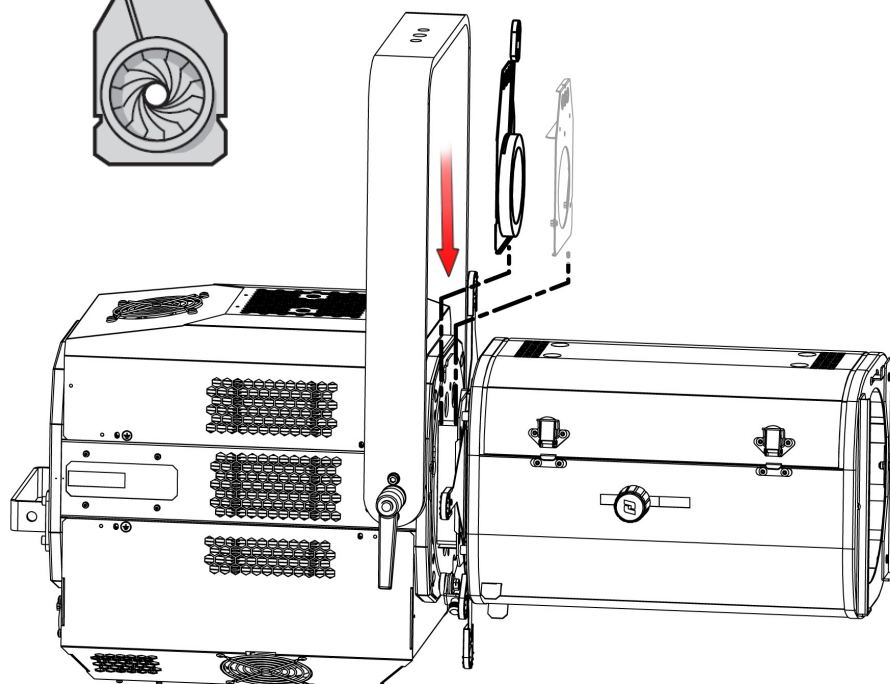
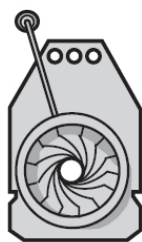
Step 3

3.4.4 Internal filter holder

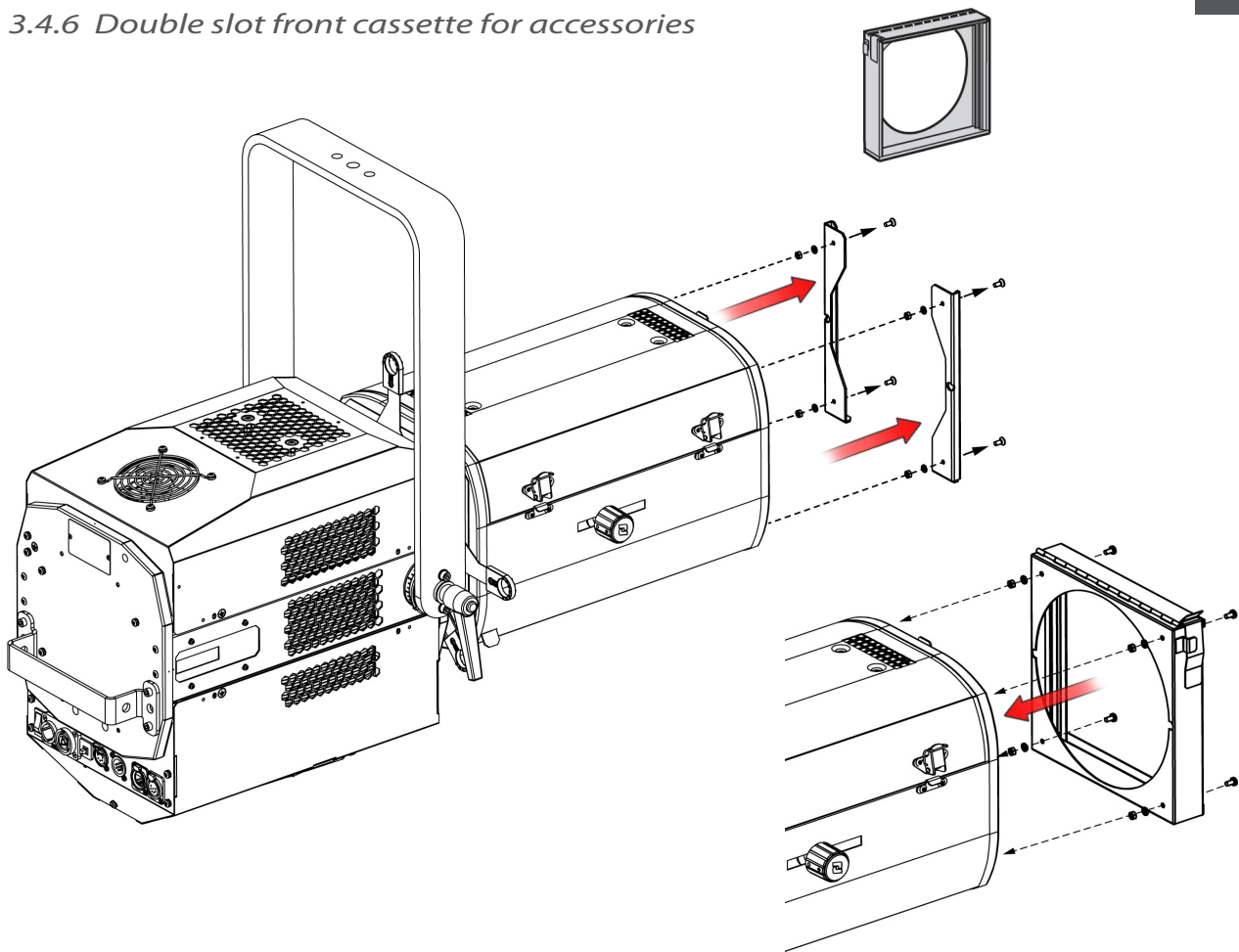
For filter dimensions,  
see section 4.8



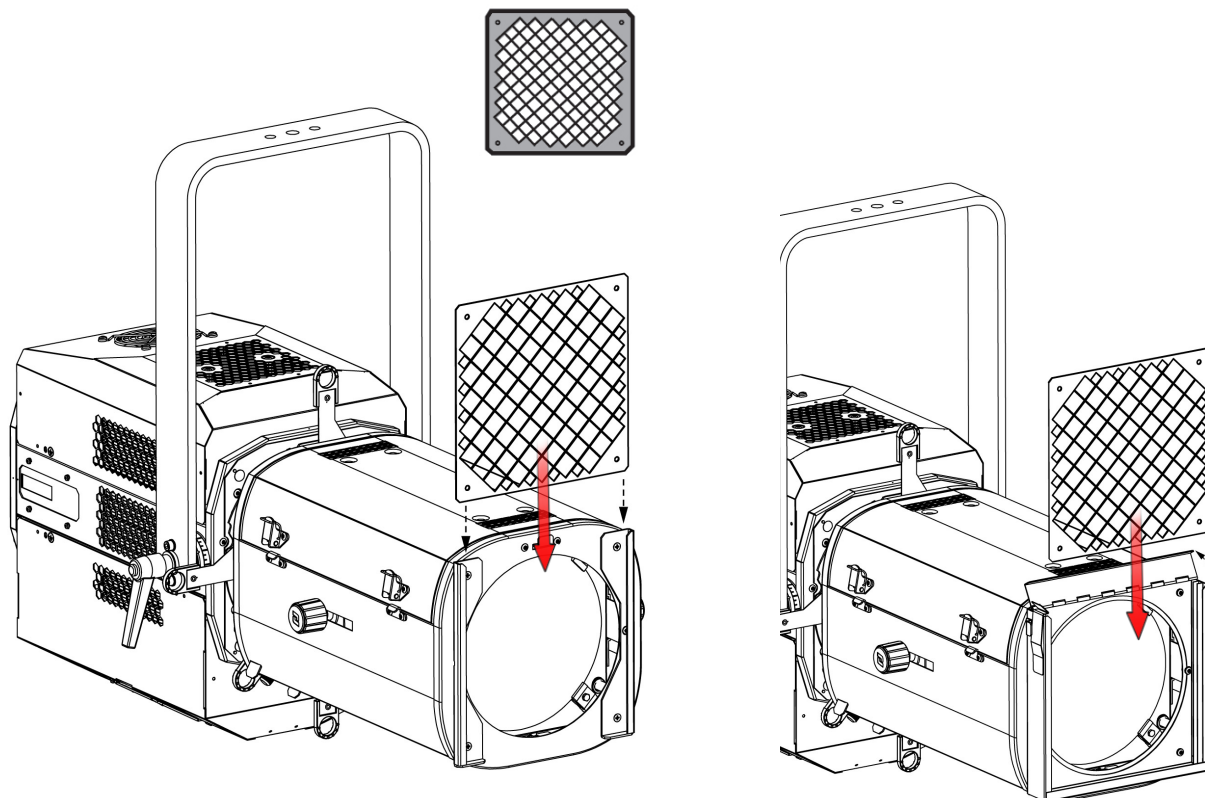
3.4.5 Drop-in iris



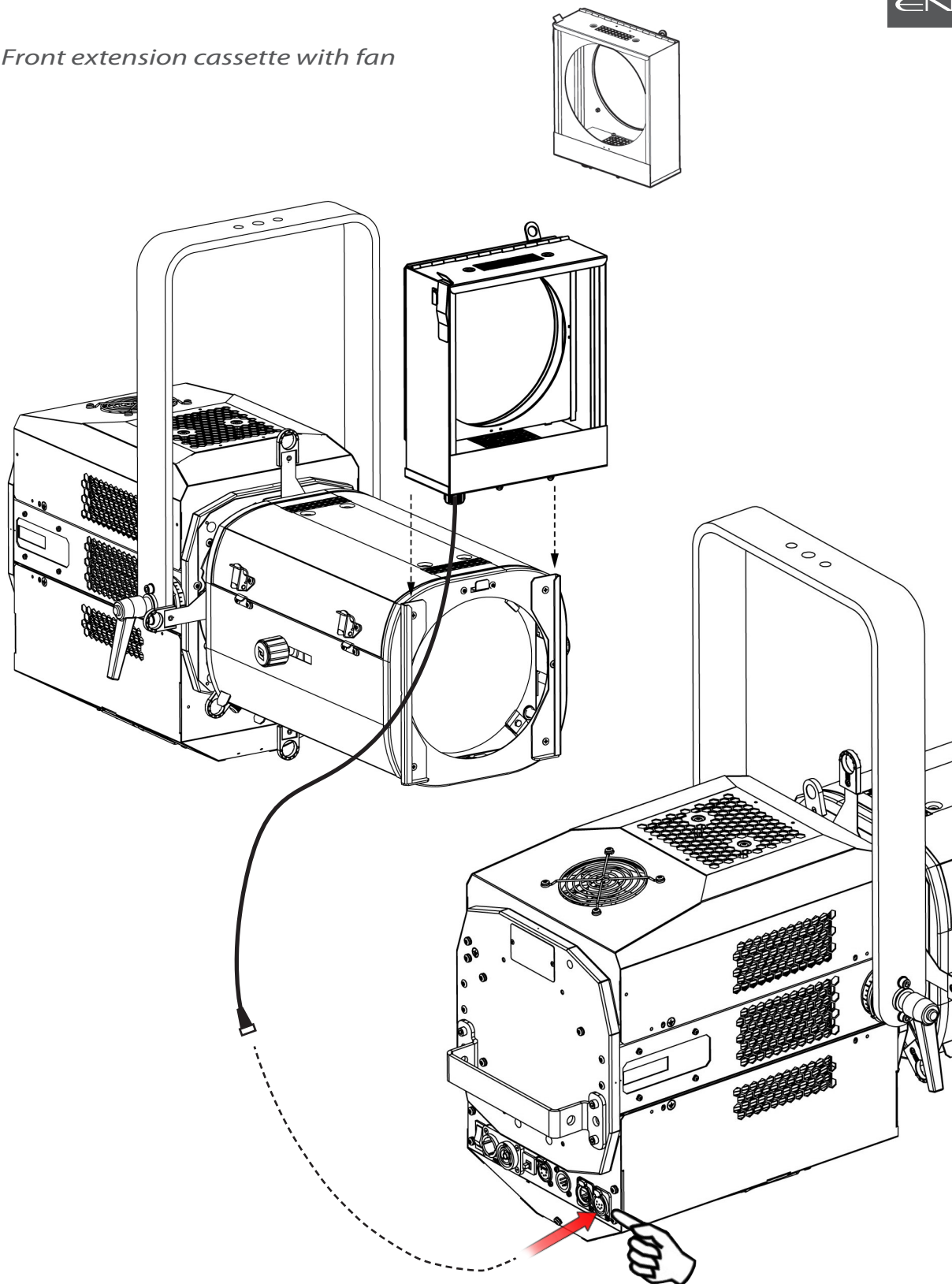
3.4.6 Double slot front cassette for accessories



3.4.7 Safety grid



3.4.8 Front extension cassette with fan





## 4.1 Light intensity

### 4.1.1 Range

• Dimming

0%

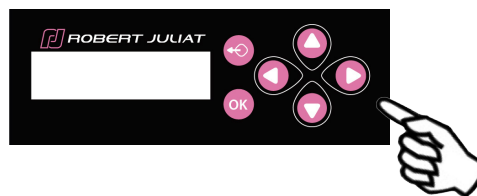
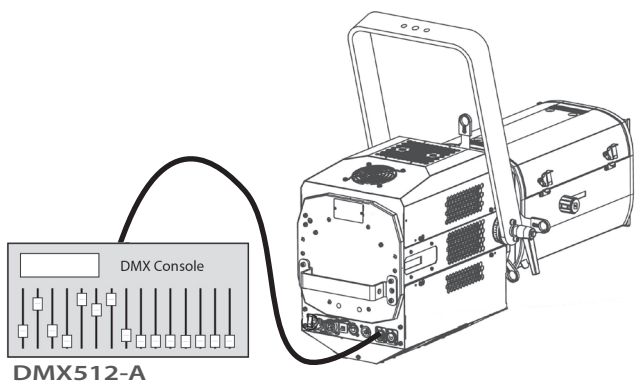


100%

### 4.1.2 Control

Remotely with DMX512-A protocol

Locally



**HTP mode (Highest Takes Precedence):**  
Light output is the highest value of DMX512 command or local control

**Focus mode:** when standby screen displayed,  
Push Exit for 3 secs → Light output = 100% for 1 minute  
2x times Exit → Light output = 0%

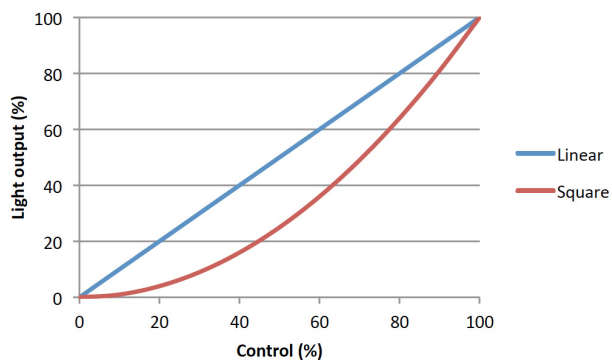
### 4.1.3 Parameters

#### 4.1.3.1 Dimming resolution - DMX only

Resolution	DMX mode
8 bits – 255 steps	2 - 4
16 bits – 65 535 steps	1 - 3

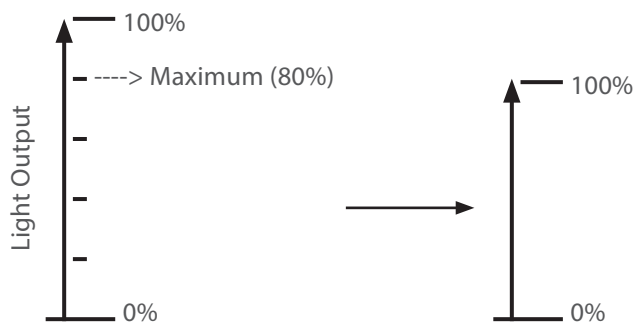
#### 4.1.3.2 Dimming curve

→ selection in SETUP/DIMMER/CURVE menu: LINEAR or SQUARE



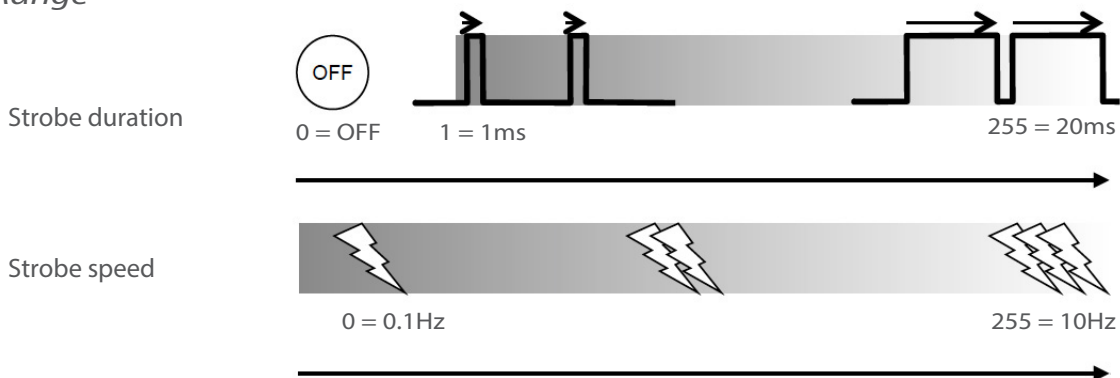
### 4.1.3.3 Set maximum position

→ Selection in *SETUP/DIMMER/MAX* menu

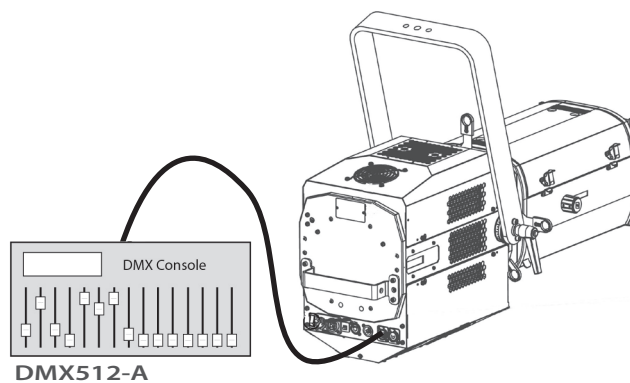


## 4.2 Strobe

### 4.2.1 Range



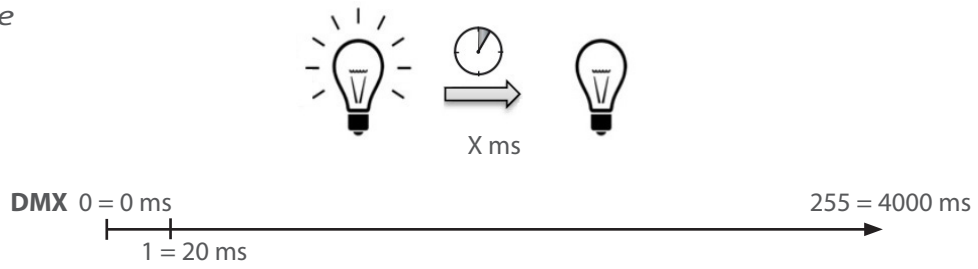
### 4.2.2 Control



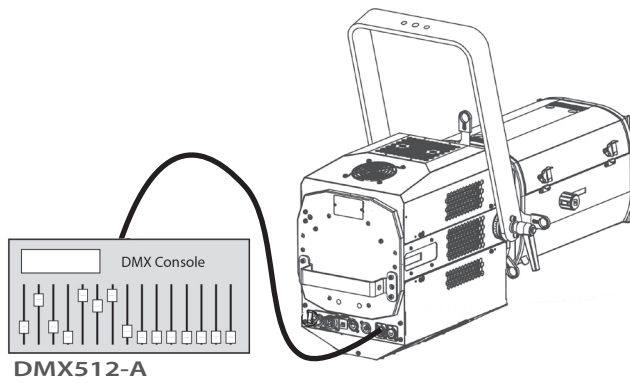
Remotely with  
DMX512-A / Art-Net / sACN protocols  
Mode 3 – 4 only

### 4.3 Response time

#### 4.3.1 Range



#### 4.3.2 Control



Remotely, with  
DMX512-A / Art-Net / sACN protocols  
Mode 3 – 4 only

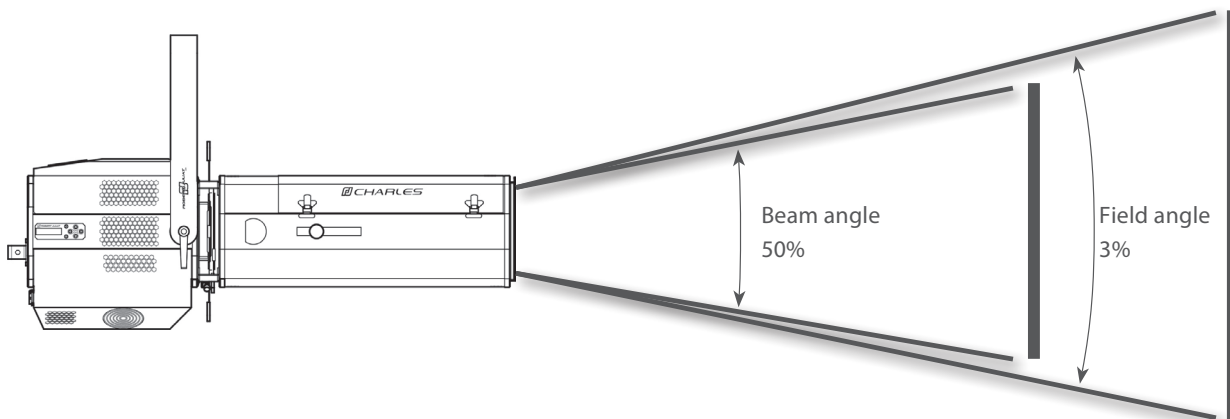


Mode	Speed
NONE	OFF
SLOW	700 ms
MEDIUM	470 ms
FAST	350 ms
CUSTOM	0 - 4000 ms

Locally, only when no DMX detected  
→ selection in  
SETUP/DIMMER/**RESPONSE TIME**

### 4.4 Beam size adjustment

#### 4.4.1 Range

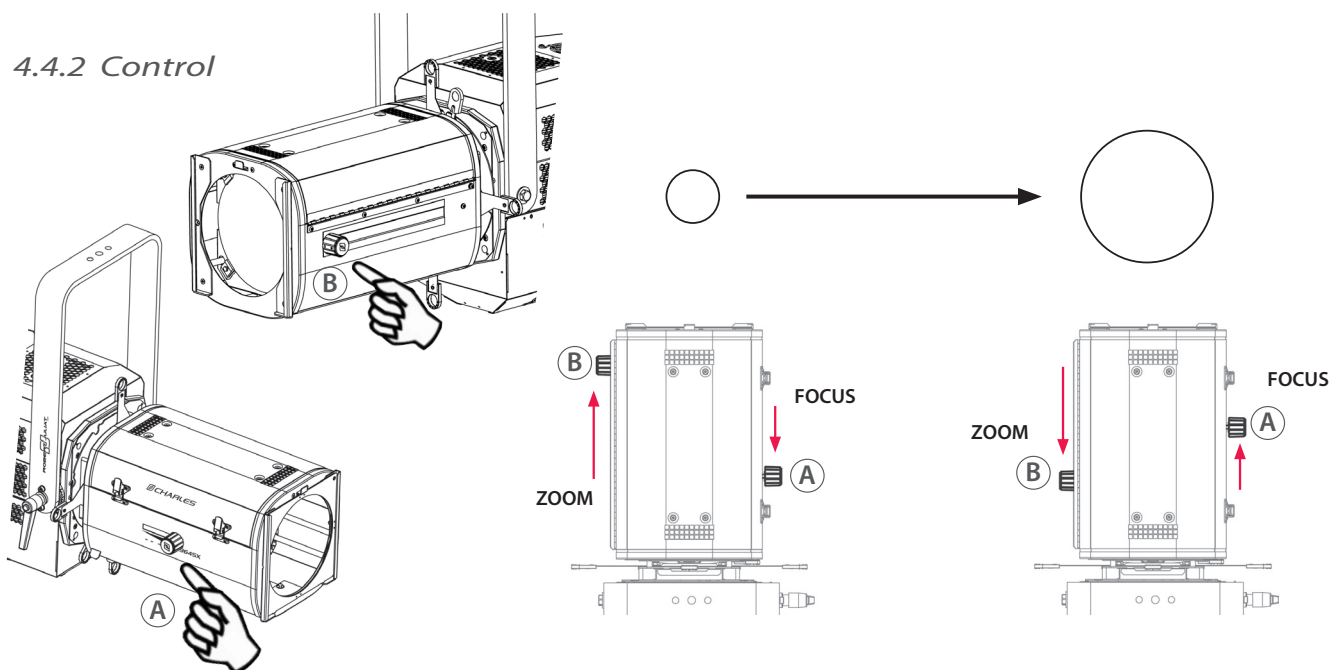


Model	Angles	Minimum angle @ 29°	Maximum angle @ 50°
963SX	Beam angle	30°	48°
	Field angle	31°	52°

Model	Angles	Minimum angle @ 15°	Maximum angle @ 40°
964SX	Beam angle	13°	37°
	Field angle	14°	40°

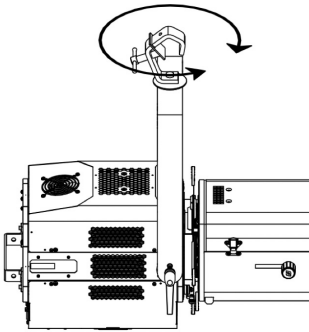
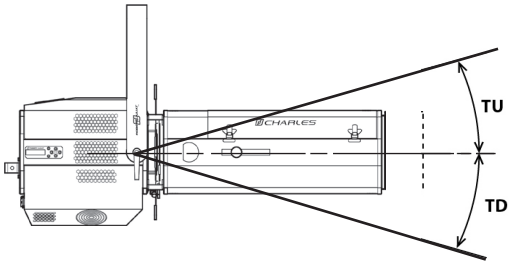
Model	Angles	Minimum angle @ 8°	Maximum angle @ 16°
961SX	Beam angle	8°	15°
	Field angle	8°	16°

#### 4.4.2 Control

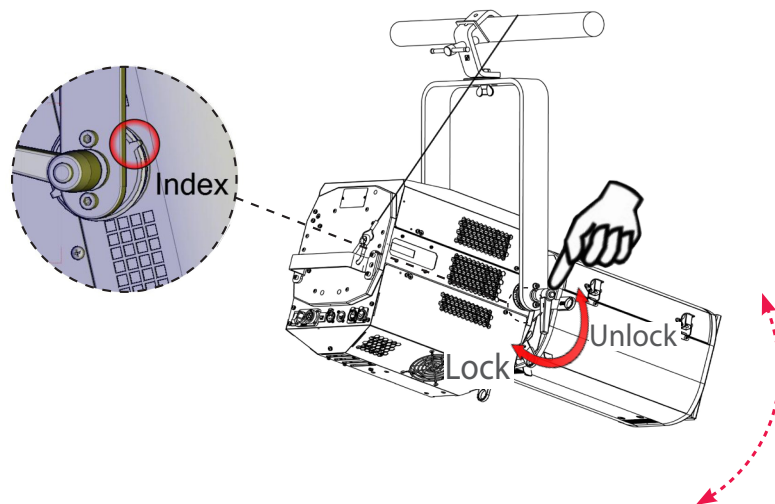


4.5 Orientation

4.5.1 Range

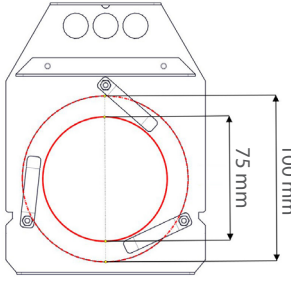
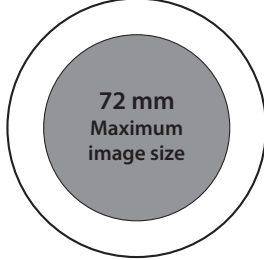
Function	Range
<p style="text-align: center;"><b>PAN</b></p> 	<p>0 → 360°</p>
<p style="text-align: center;"><b>TILT</b></p> 	<p>TU = 0 → 68° TD = 0 → 90°</p>

4.5.2 Control

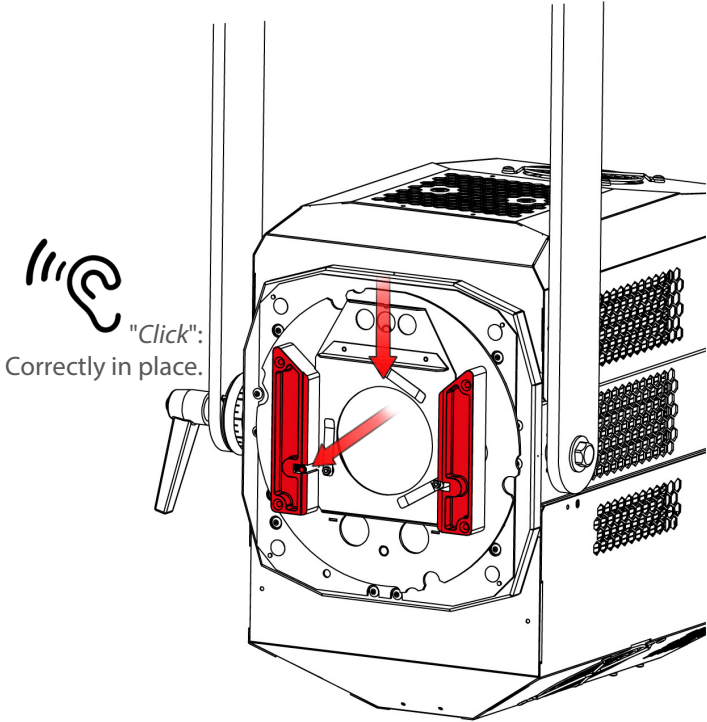


4.6 Gobo

4.6.1 Range

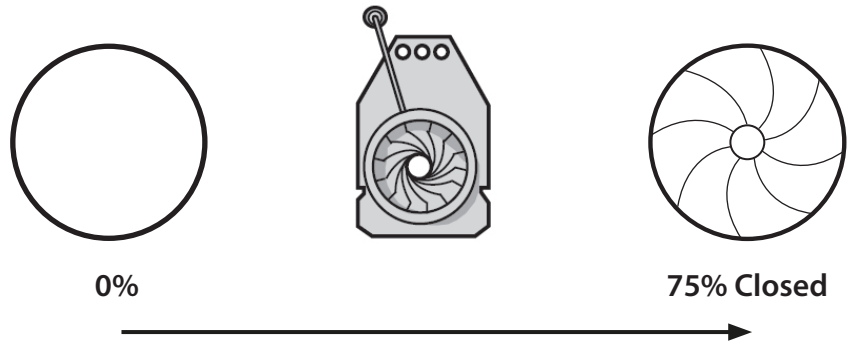
<p>Type</p>	<p>Standard gobo - A size</p>	
<p>Dimensions</p>		<p>100 mm</p>  <p>72 mm Maximum image size</p> <ul style="list-style-type: none"> <li>• Metal</li> <li>• Glass</li> </ul> <p><i>Values are in millimeters (mm)</i></p>
<p>Installation</p>	<p>See 3.4.2</p>	

4.6.2 Control

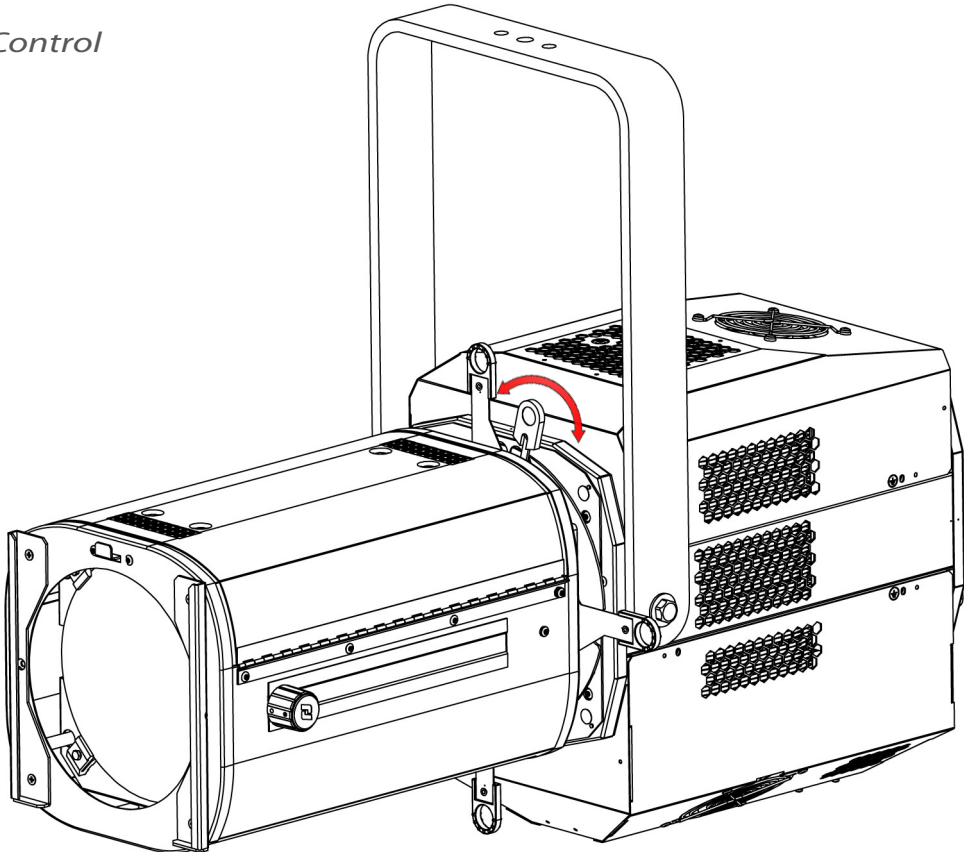


### 4.7 Iris

#### 4.7.1 Range



#### 4.7.2 Control



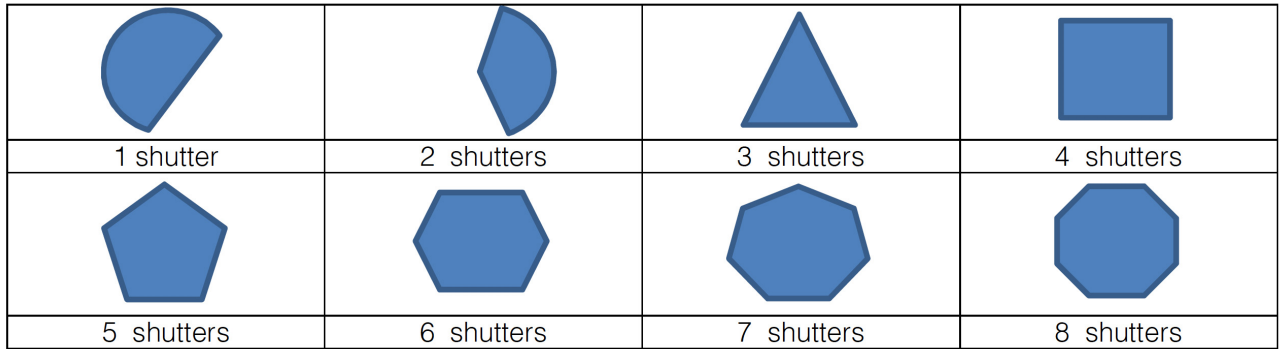
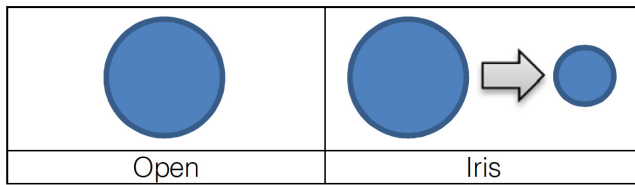
4.8.1 Range

Location		
	1. Internal filter holder	2. Front filter cassette (option)
Type	Frosted or dichroic glass	Coloured gel filter (option)
Dimensions		
Installation	See 3.4.4	See 3.4.6

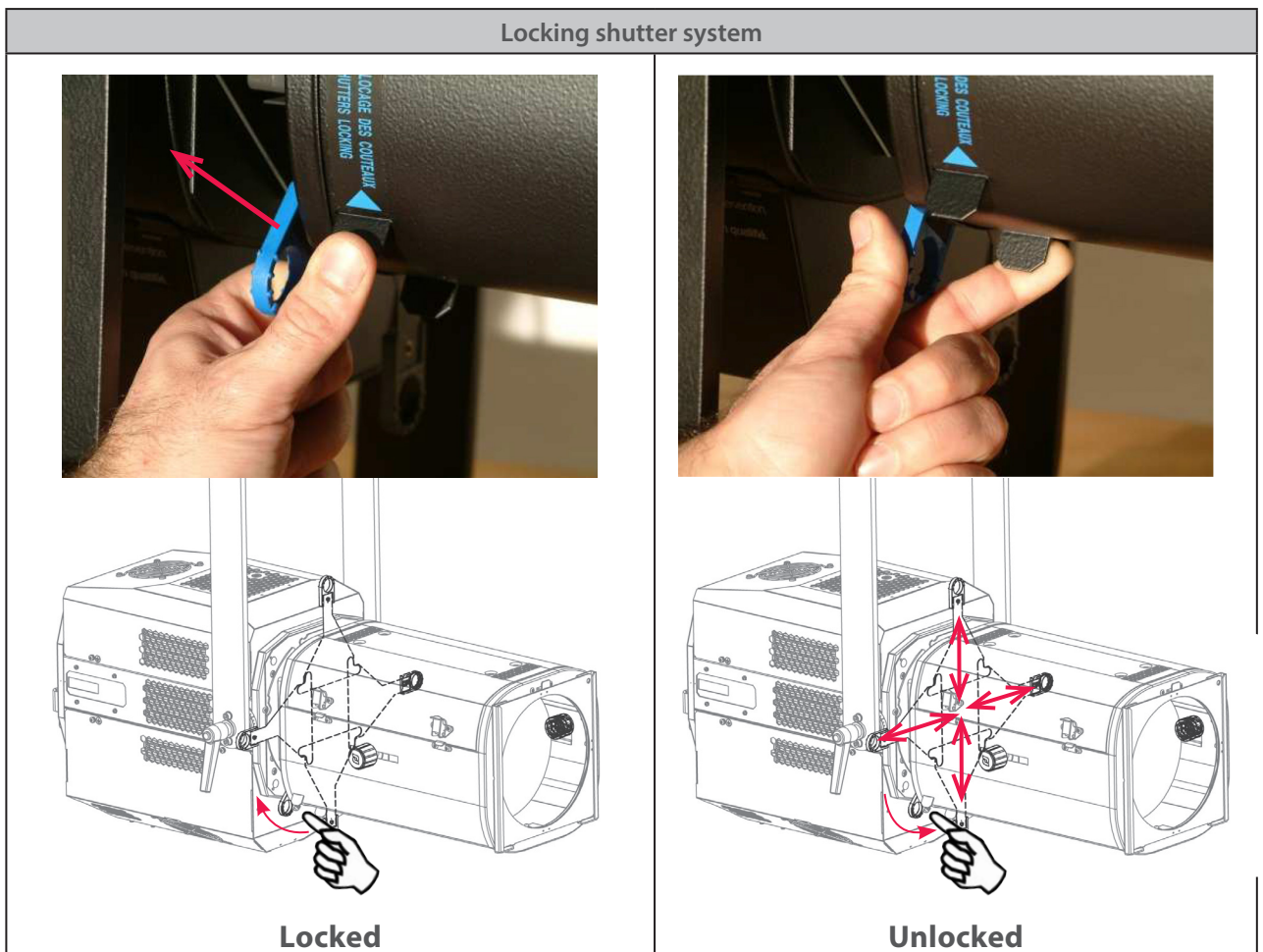


## 4.9 Beam shaping

### 4.9.1 Range



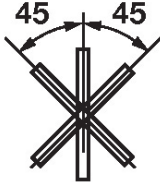


### 4.9.2 Control

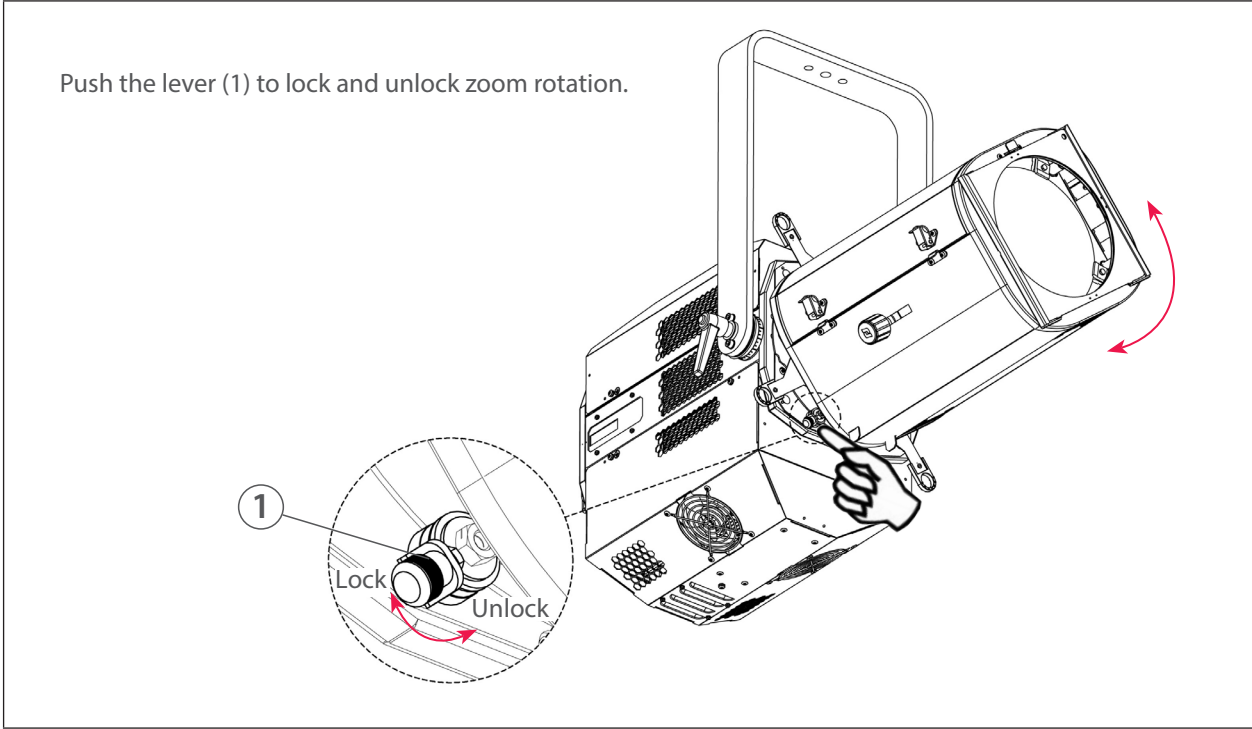


4.10 Beam rotation

4.10.1 Range

Function		Range
		
Gobo	Shutters	

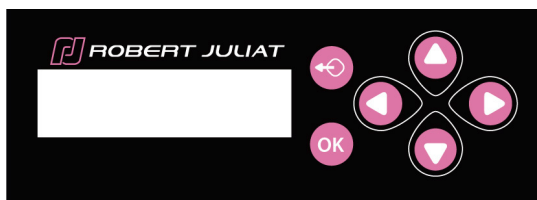
4.10.2 Control










# 5 Controls and parameters

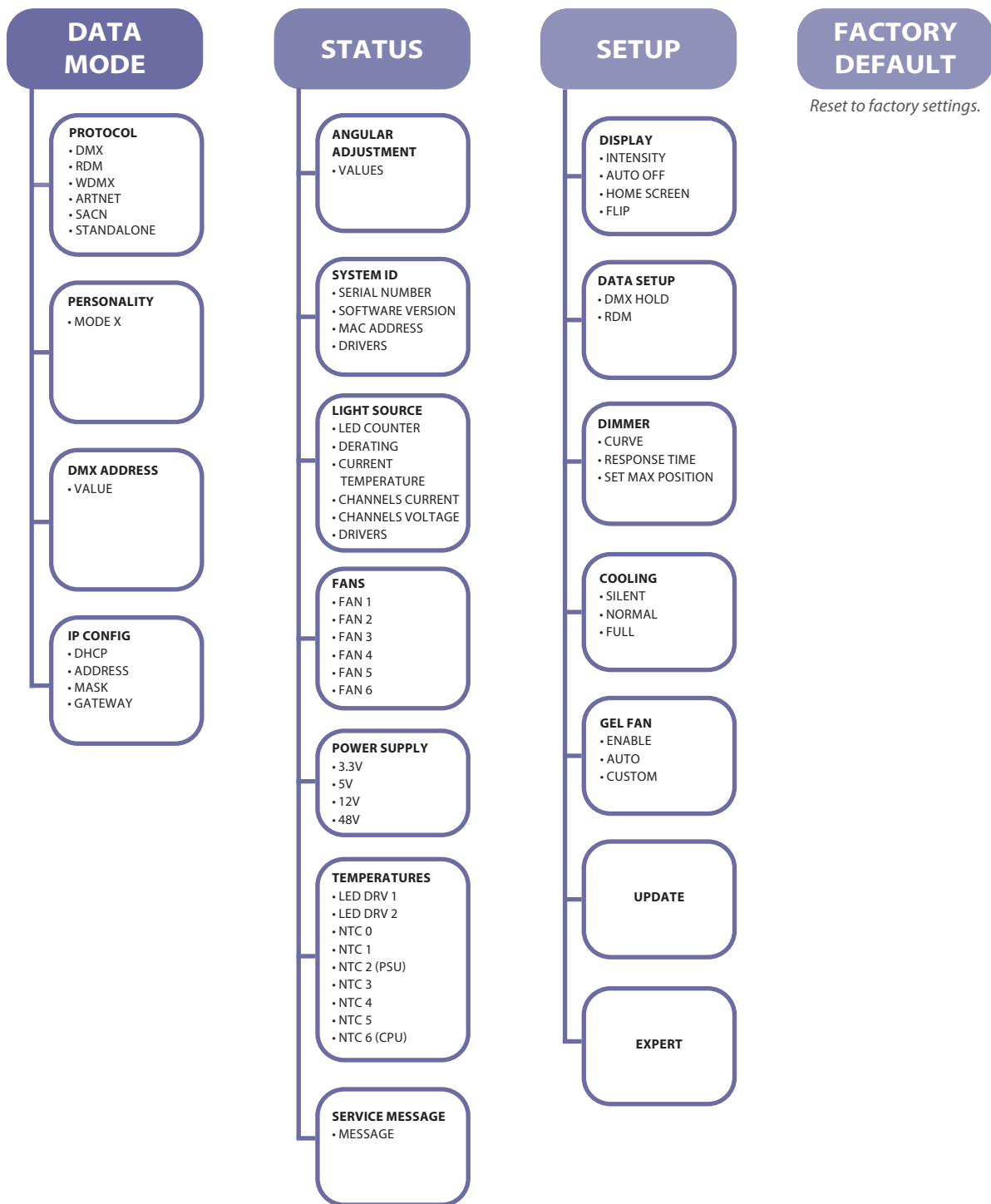
## 5.1 Local display and controls

### 5.1.1 Display



Function	
	Exit the current menu option and/or go back
	Press for 3 secs to enter Focus mode
	Enter the current menu option and/or valid
	Scroll through menus and/or Increase data value
	Scroll through menus and/or Decrease data value
	Scroll through menus and/or Increase data value
	Scroll through menus and/or Decrease data value

### 5.1.2 Menus



### 5.1.3 Parameters

→ Selection in *SETUP/DISPLAY MODE* menu

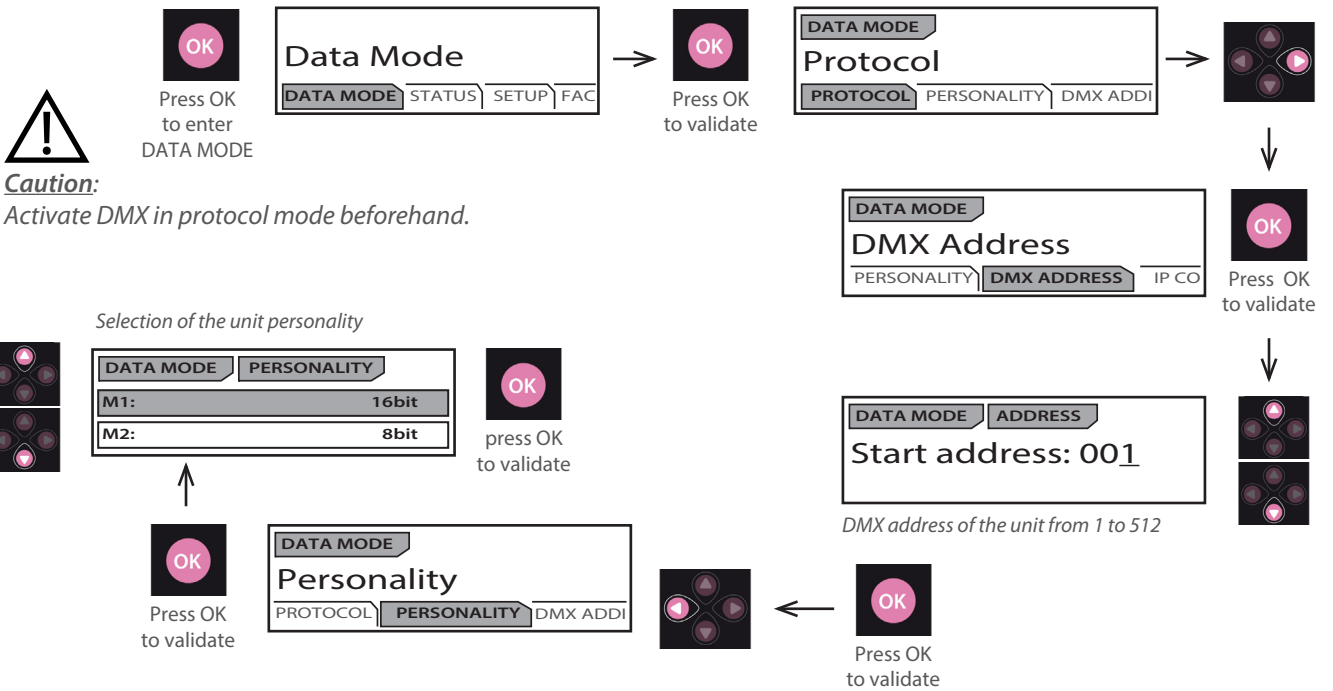
Display	Mode	Description
	Always ON	Main display (home screen) always ON
	Intensity	Adjust the intensity of the screen <i>To change value, press buttons :</i> press OK to validate
	Auto-OFF	Main display OFF after 20 seconds
	Home Screen	A choice between 2 screen displays, Mode 1 & Mode 2 <i>To change value, press buttons :</i> press OK to validate
	Flip	AUTO : Will change automatically NORMAL : Screen display horizontally FLIP : Change to vertical display <i>To change value, press buttons :</i> press OK to validate

### 5.2 DMX512 - A remote control

#### 5.2.1 Protocol:

#### E1.11 – 2008, USITT DMX512-A

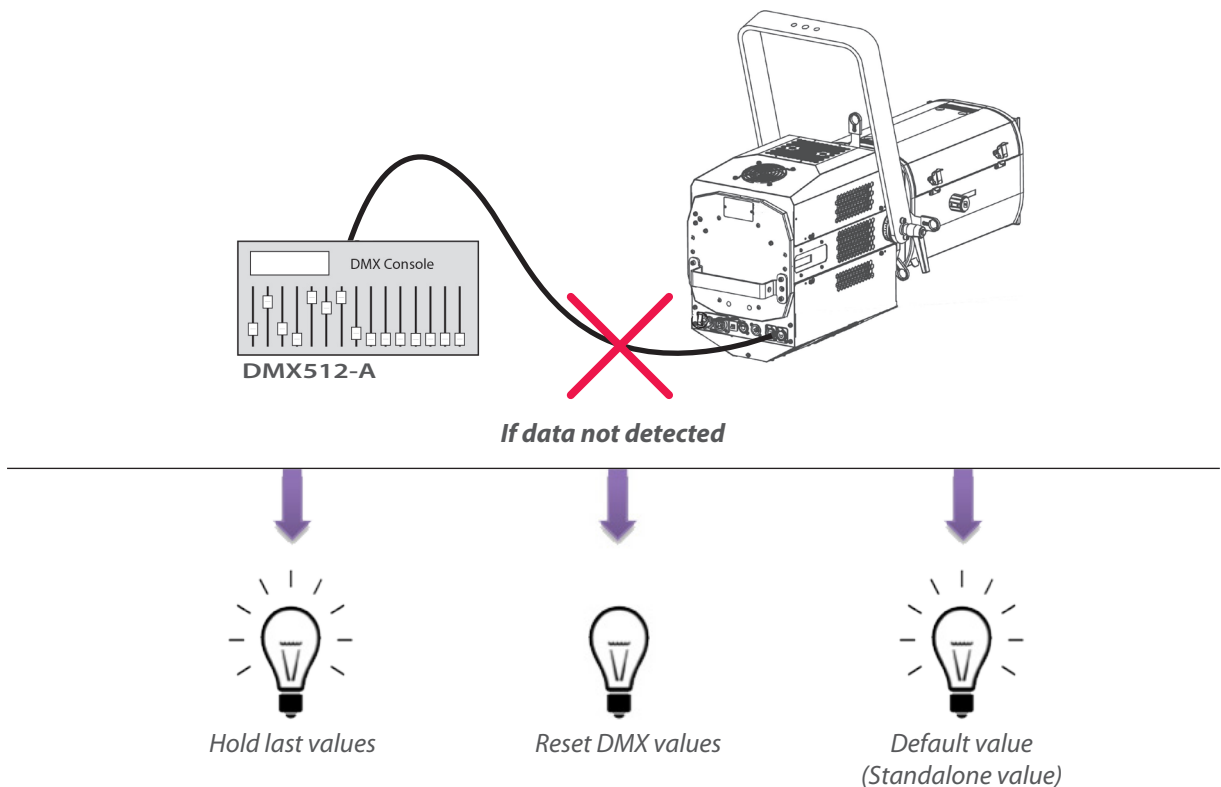
#### 5.2.2 Configuration:



#### 5.2.3 Parameters:

##### 5.2.3.1 DMX Hold

→ Selection in SETUP/DMX HOLD menu



## 5.2.4 DMX chart:

DMX Channel	Mode 1: Dimmer8B	Mode 2: Dimmer16B	Mode 3: Profile8B	Mode 4: Profile16b
1	Dimmer	Dimmer	Dimmer	Dimmer
2		Dimmer fine	Strobe duration	Dimmer fine
3			Strobe speed	Strobe duration
4			Response time	Strobe speed
5			Control mode	Response time
6				Control mode
7				
8				

## 5.2.5 DMX ranges:

### 5.2.5.1 Strobe duration

Range min	Range max	Function
0	0	Strobe OFF
1	255	Strobe ON - 1 ms → 20 ms

### 5.2.5.2 Strobe speed

Range min	Range max	Function
0	255	Frequency: 0,1 Hz → 10 Hz

### 5.2.5.3 Response time

Range min	Range max	Function
0	0	OFF
1	255	Response time: 0,20 ms → 4 s

### 5.2.5.4 Control mode\*

Range min	Range max	Function
0	0	
1	10	RDM disabled
11	20	RDM enabled
21	100	not used
101	110	Cooling mode: Silent
111	120	Cooling mode: Normal
121	130	Cooling mode: Full power
131	140	Front extension cassette with fan disable
141	150	Front extension cassette with fan enable
151	255	not used

(\*) Function activated after 5 seconds - need to go back to zero to activate second function.

### **5.3 RDM remote control**

#### **5.3.1 Protocol**

##### **ANSI E1.20 – 2010 / ANSI E1.37 - 1**

For more information about RDM protocol: <http://www.rdmprotocol.org/>

#### **5.3.2 Functions available soon.**

#### **5.3.3 Parameters ON/OFF available soon.**



## 5.4 Art-Net remote control



### 5.4.1 Protocol Artistic Licence Art-Net

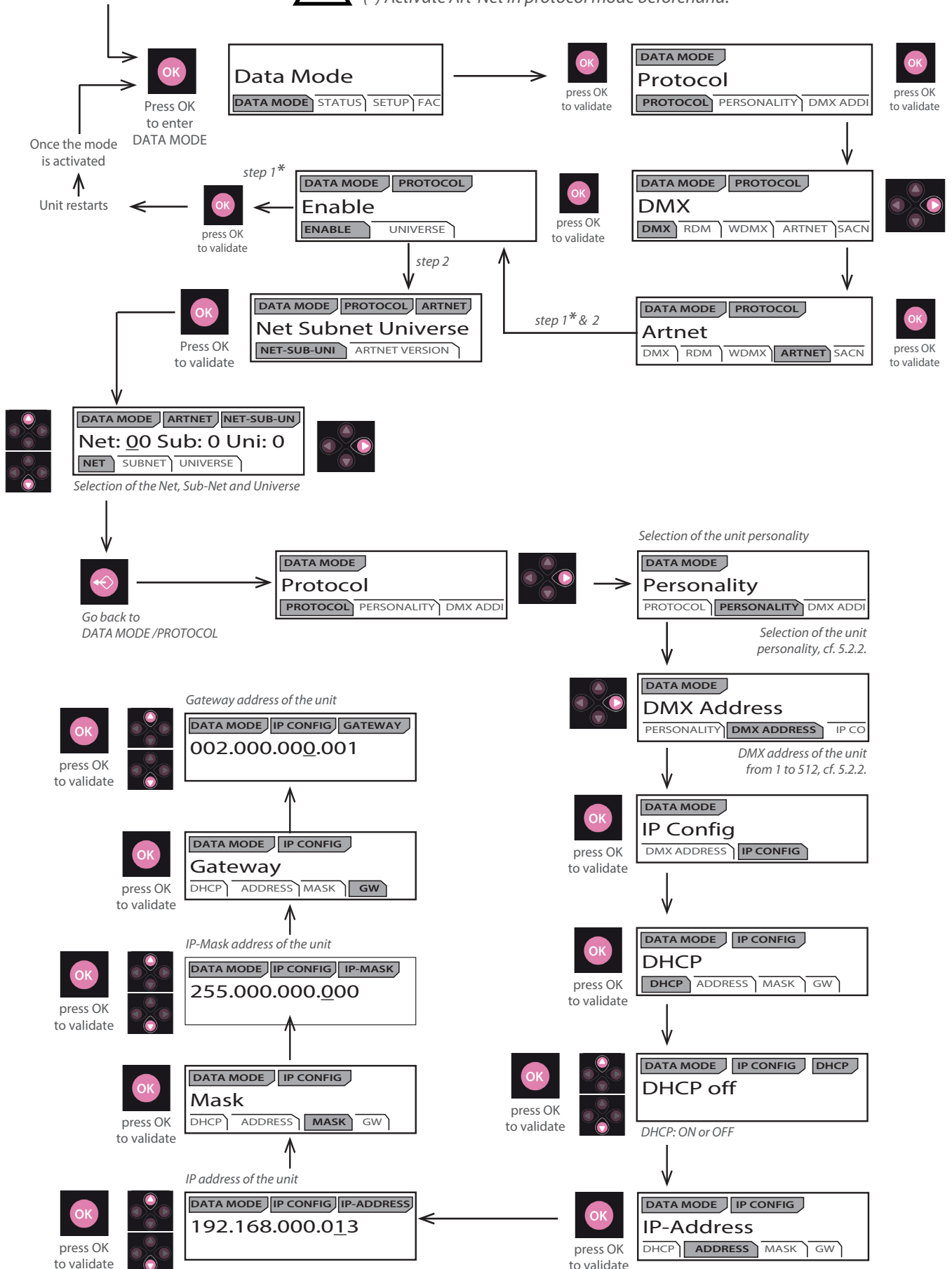
For more information about Art-Net protocol: <http://art-net.org.uk/>

### 5.4.2 Configuration



**Caution:**

(\* ) Activate Art-Net in protocol mode beforehand.



### 5.5 sACN remote control

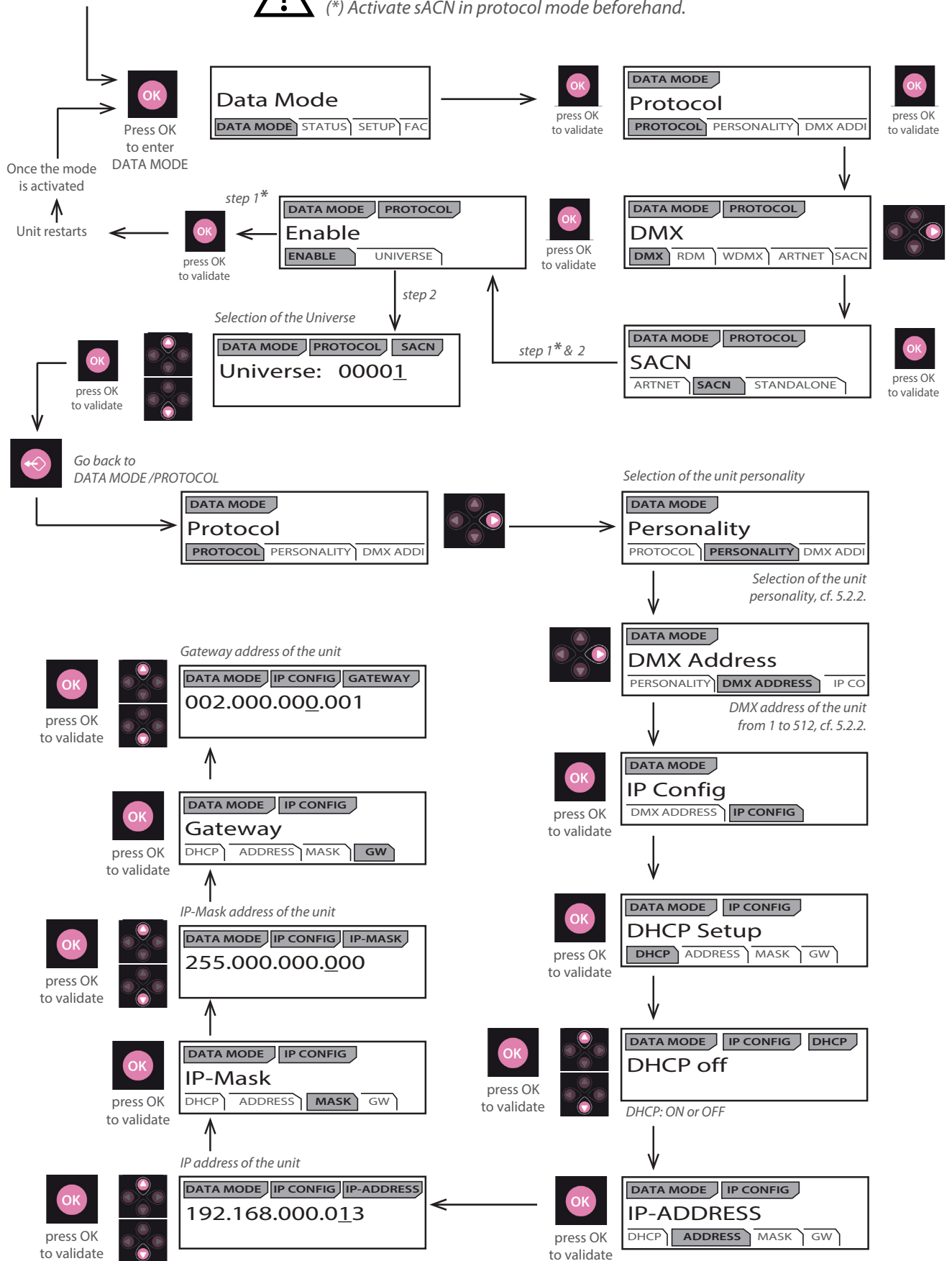
#### 5.5.1 Protocol ANSI E1.31 – 2009 sACN (Streaming-ACN)

#### 5.5.2 Configuration








**Caution:**

(\* ) Activate sACN in protocol mode beforehand.

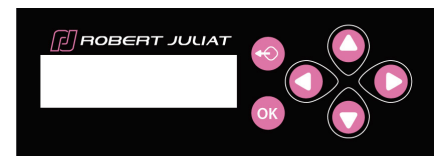
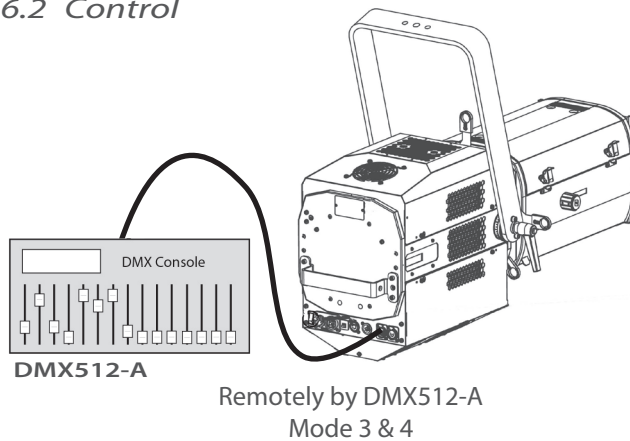


## 5.6 Fan cooling modes

### 5.6.1 Range

Modes	Silent	Normal	Full
 <b>Cooling</b>	 < 38 dB(A)	 	 
 <b>Brightness</b>	60 → 85%	80 → 95%	100%

### 5.6.2 Control



Locally → selection in  
SETUP/COOLING

## 5.7 Gel Fan modes (for colour changer option)

GEL FAN menu:

- **Enable:** activates / deactivates the fan of the colour changer. If it is activated, it will be in one of the 2 modes chosen below :
  - **Auto:** fan speed is controlled by the power delivered by the fixture.
  - **Custom:** the user can choose between 0 and 100%.

## 6 Service

### 6.1 Preventive maintenance

#### 6.1.1 Frequency

General maintenance should be performed at least once a year or more frequently if the equipment is operated in adverse conditions (smoke, heat, humidity, touring, etc.).

#### 6.1.2 General cleaning

Remove dust from the unit.  
Front glasses can be cleaned with solutions containing alcohol.

#### 6.1.3 General visual check

- No trace of heat.
- No loose contacts.
- No missing parts.
- Tighten mechanical assemblies (screws, bolts and nuts, etc.).

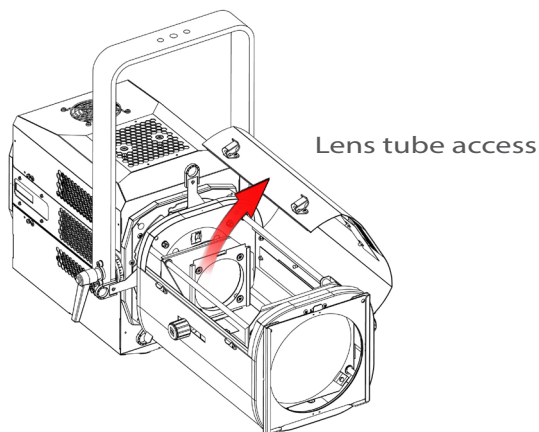
#### 6.1.4 LED source



- Do not touch the surface of the LED source (no contact with your hands or any tools).
- Do not put compressed air directly on the source.
- Contact a certified RJ distributor in case of residuals or other objects located on the surface of the LED source.

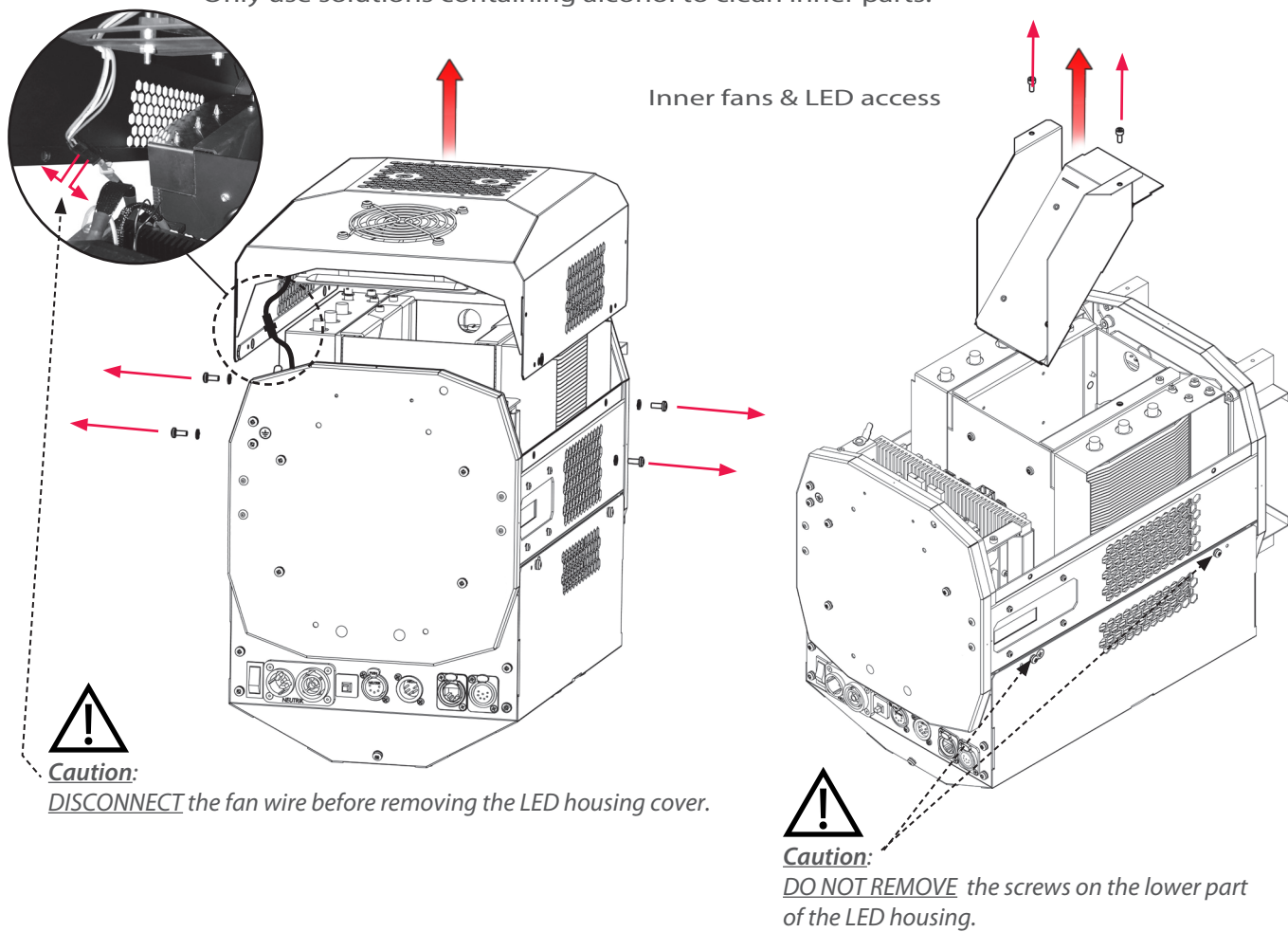
### 6.1.5 Optics

Only use solutions containing alcohol to clean optical parts (lenses).



### 6.1.6 Inner fans & LED glass protection cleaning

Only use solutions containing alcohol to clean inner parts.



### 6.2 Analysis



In case of problem, contact RJ distributor with the following information:

- Model, version and serial number of the product.
- From the menu status:
  - Software version
  - LED board IDs
  - Device hours
- Description of the problem.

### 6.3 Electronic thermal management system

In case of overheating, light intensity will be reduced by the system.

"Power reduction X%" will be shown on the display with the reducing percentage.

### 6.4 Firmware update

If the CPU firmware is before 1.9 you must upgrade to 1.9 first, doing a factory reset and then upgrade to the current revision. Not following this procedure might damage the CPU board.

Switch on CHARLES and config IP address:

Turn off the local potentiometer

- Set DHCP = OFF

#### Method 1 - IP address settings (quickest):

- Check the default IP address of the fixture. It can be found at the back of the lamphouse near the factory plate.
- Set the IP address of the computer:
  - IP address: 2.2.2.2
  - Mask: 255.0.0.0
- Connect the Network cable from computer to the unit
- Open a web browser (Firefox) or (Chrome). In some computer you may have some issues with either Firefox or Chrome but if one is not working the other one will.
- Enter the URL address of the unit: <http://AAA.BBB.CCC.XXX>
- Load the firmware
- Submit and wait for the install to complete.
- Before using the unit you must do a factory reset

#### Method 2 - IP address settings:

- Fixture IP Address settings through main display:
  - ADDRESS = AAA.BBB.CCC.XXX
  - MASK = 255.255.255.0
  - Exit to main menu to validate modifications.
- Set the Network IP of the computer:
  - ADDRESS = AAA.BBB.CCC.YYY with YYY ? XXX
  - MASK = 255.255.255.0
- Connect the Network cable from computer to the unit.
- Open a web browser (Firefox) or (Chrome). In some computer you may have some issues with either Firefox or Chrome but if one is not working the other one will.
- Enter the URL address of the unit: <http://AAA.BBB.CCC.XXX>
- Load the firmware.
- Submit and wait for the install to complete.
- Before using the unit you must do a factory reset.

#### Troubleshooting - Continuous Reboot Mode

To get out from this loop:

- Switch OFF the fixture.
- Press down (firmly) up and down arrow keys and start the fixture.  
Hold them tight until you get the menu and then do a factory reset.