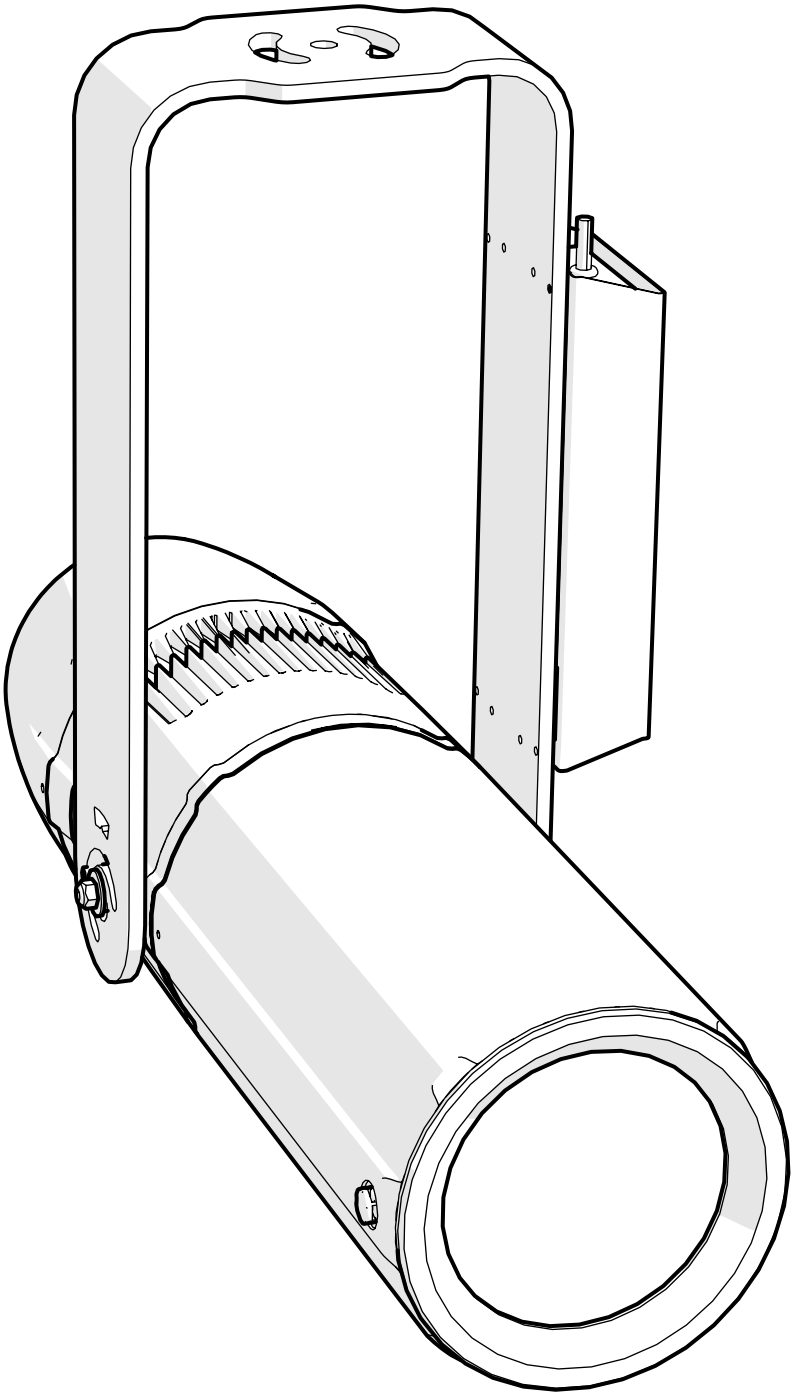
LEDko™ EXT

FullSpectrum RGBLA

with dual gobo rotator



USER MANUAL

vrs. 2.3 - 28.11.2023

coemar

Congratulations on having purchased a **Coemar** product. You have assured yourself of a fixture of the highest quality, both in componentry and in the technology used. We renew our invitation to you to complete the service information on the previous page, to expedite any request for service information or spares (in case of problems encountered either during, or subsequent to, installation). This information will assist in providing prompt and accurate advice from your **Coemar** service centre. Following the instructions and procedures outlined in this manual will ensure the maximum efficiency of this product for years to come.

Index

1. Packaging and transportation

1.1 Packaging

Open the packaging and make sure that no part of the equipment has suffered any damage during the transportation. In case of damage to the fixture, contact your currier and your supplier immediately by telephone, fax or email, and inform them you will formally notify them in writing through registered letter.

Packing list

Ensure the packaging contains:

1 LEDko EXT FullSpectrum RGBLA
1 Instruction manual
1 Power Junction Connector (CN72)
2 DMX Signal Junction Connector (CN73)
1 DMX end of line closure cap (RME34/G)
1 Wrench for gobo rotator (BC016A010)

1.2 Transportation

The **LEDko EXT FullSpectrum RGBLA** should be transported in either its original packaging or in an appropriate flight case.

2. General information

2.1 Safety informations

Fire prevention:

1. Never locate the fixture on any flammable surface.
2. Minimum distance from flammable materials: 0,5 m.
3. Minimum distance from the closet illuminable surface: 0,5 m.
4. Replace any blown or damaged fuse only with those of identical values. Refer to the schematic diagram if there is any doubt.
5. Connect the projector to mains power protected by a thermal magnetic circuit breaker.

Prevention from electric shock:

1. Presence of high voltage inside of the fixture. Insulate the projector from mains supply before opening or performing any function which involves touching the inside of the fixture, including lamp replacement.
2. For the connection to the mains, adhere strictly to the guidelines outlined in this manual.

3. The level of technology of **LEDko EXT FullSpectrum RGBLA** requires the use of specialised personnel for all service applications; refer all work to your authorised **Coemar** service centre.
4. A good earth connection is essential for the proper functioning of the projector. Never connect the fixture if there is no earth connection.
5. Mains cables must not come into contact with other cables.
6. Do not operate the projector with wet hands or in an area where water is present.
7. The fixture must never be located in an exposed position, or in areas of extreme humidity.

Safety:

1. The projector must always be installed with bolts, clamps, or other fixing devices which are suitably rated to support the weight of the projector.
2. Always use a secondary safety fixing device with chain or steel wire of a suitable rating to sustain the weight of the unit in case of failure of the principal fixing point.
3. The external surfaces of the unit, at various points, may reach 60°C. Never handle the unit until at least 10 minutes have elapsed since the LED was turned off.
4. Never install the fixture in an enclosed area lacking sufficient air flow; the room temperature must not exceed 40°C.
5. The projector contains electronic and electrical components which must under no circumstances be in contact with water, oil or any other liquid. Failure to do so will compromise the proper functioning of the projector.

2.2 Warranty conditions

1. The fixture is under warranty for 24 months from the purchase date against factory defections.
2. Damage ought to unskillfulness, inappropriate use, or lack of suggested maintenance are excluded from the warranty.
3. Warranty expires when the projector is opened by unauthorized personnel.
4. Warranty doesn't include the replacement of the fixture.
5. Serial number and model of the fixture are necessary to retrieve informations and assistance from the dealer.

2.3 EC Norms

1. The fixture satisfies the essential requirements of the directive 2004/108/EC, 2006/95/EC, 2011/65/EC, 2002/96/EC & 2003/108/EC.
2. The fixture is in accordance with the standard EN 50419 (RoHS) and satisfies the requirements of the directive 2002/96/EC (WEEE).

3. Product specifications

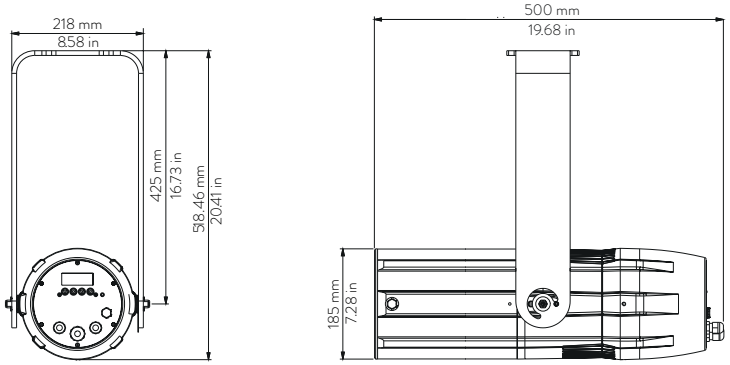
3.1 Technical characteristics

Power supply	80-264 V, auto-sensing, 50/60 Hz
Maximum current	1.26 A @ 230 VaC, 2.53 A @ 115 VaC
Power factor	Cosϕ = 0.98
Power consumption	285 watt
Color temperature	RGBLA color mixing and all whites from 2.700 to 6.500 K
Weight	(**14°-35°**) 14Kg/30.8lbs - (**10°-25°**) 15Kg/33.1lbs
	(**80°**) 12.1Kg/26.6lbs - (**30°-60°**) 12.6Kg/27.7lbs
Storage temperature	from - 40° C / -40° F to + 85° C / +185° F
Operating temperature	from - 40° C / -40° F to + 40° C / +104° F
IP rating	IP65

3.2 Dimensions

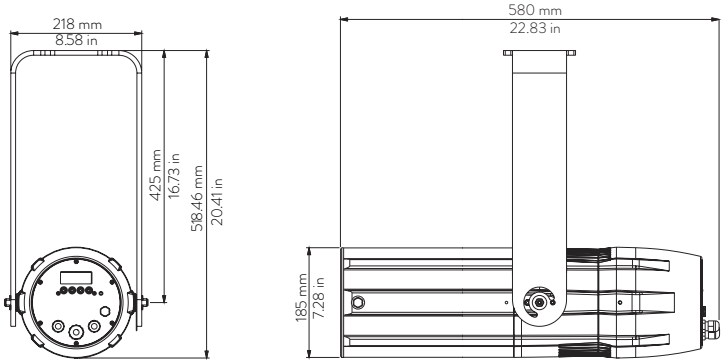
LEDko EXT 80° Optic

Length	Width	Height	Weight
500 mm 19.68 in	252.6 mm 9.94 in	185 mm 7.28 in With bracket: 518.46 mm 20.41 in	12.1 Kg 26.6lbs



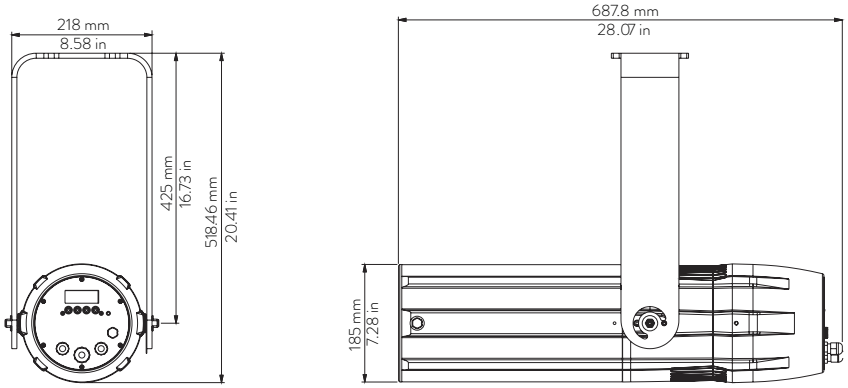
LEDko EXT 30°-60° Zoom

Length	Width	Height	Weight
580 mm 22.83 in	252.6 mm 9.94 in	185 mm 7.28 in With bracket: 518.46 mm 20.41 in	12.6 Kg 27.7 lbs



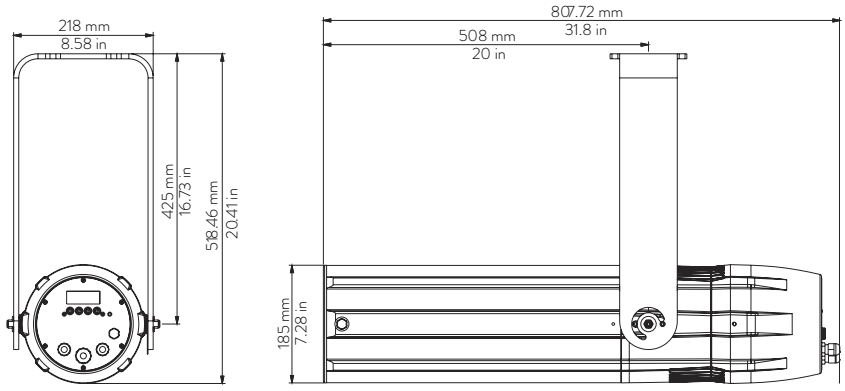
LEDko EXT 14°-35° Zoom

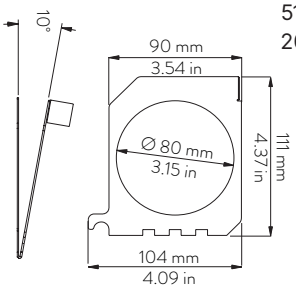
Length	Width	Height	Weight
687.8 mm 27.07 in	252.6 mm 9.94 in	185 mm 7.28 in With bracket: 518.46 mm 20.41 in	14 Kg 30.8 lbs



LEDko EXT 10°-25° Zoom

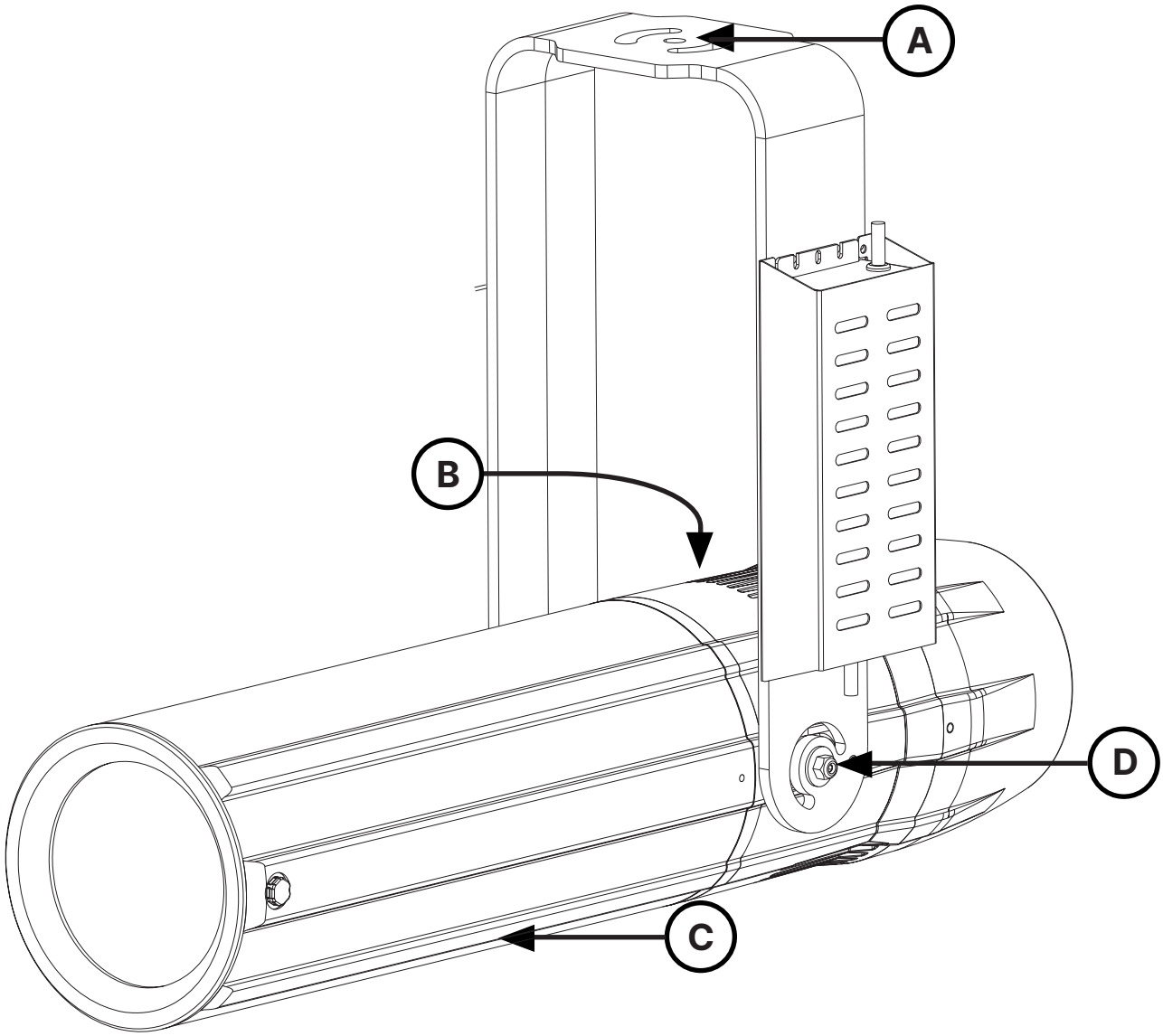
Length	Width	Height	Weight
807.7 mm 31.8 in	252.6 mm 9.94 in	185 mm 7.28 in With bracket: 518.46 mm 20.41 in	15 Kg 33.1 lbs





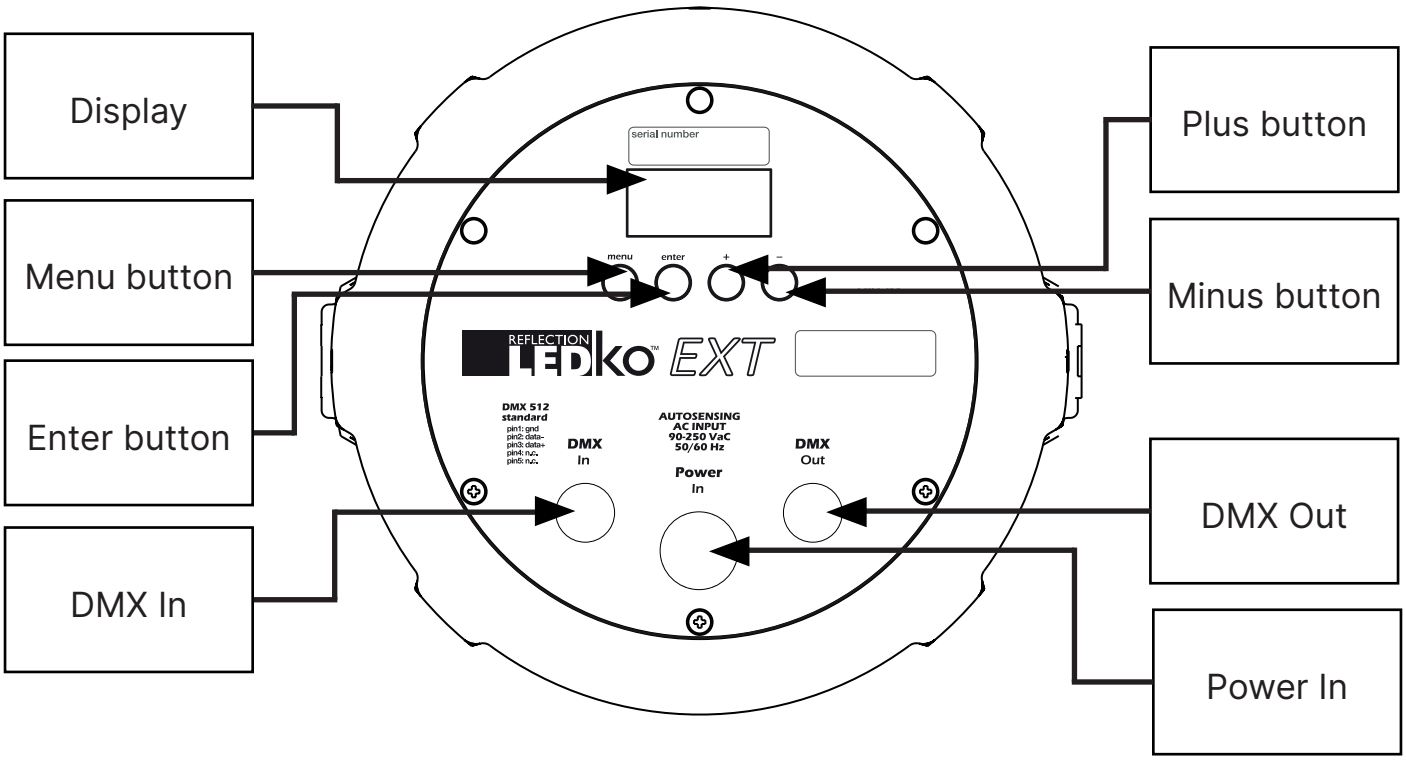
Gobo holder

3.3 Unit's main components



Components description	
A	Yoke with mounting holes
B	Cooling unit
C	Optical holder tube
D	Locking screw for yoke

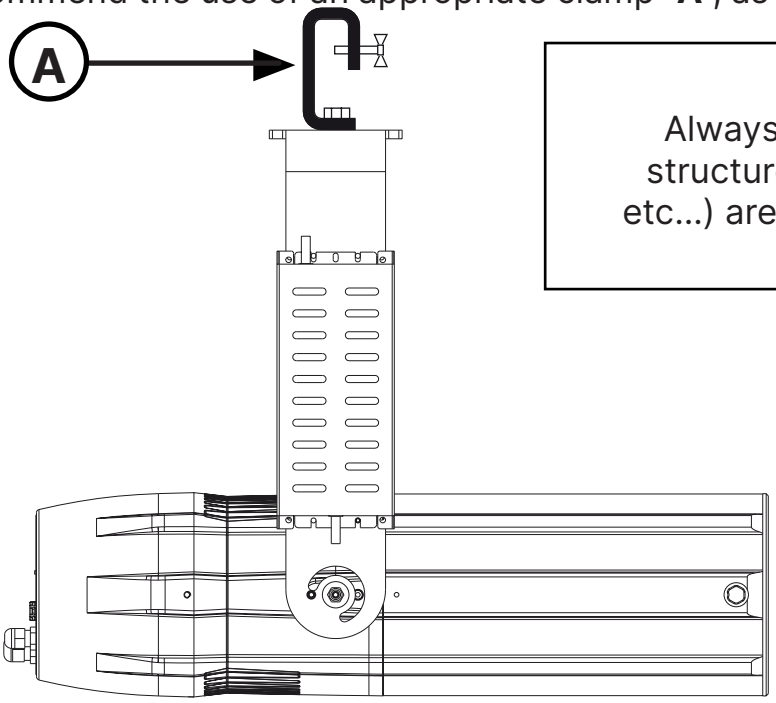
3.4 Back panel description



4. Installation

4.1 Mechanical installation

LEDko EXT FullSpectrum RGBLA may be hung from an appropriate structure in any position or on tripode. If hanging the fixture from a lighting truss or similar, we recommend the use of an appropriate clamp "**A**", as shown in the following diagram.

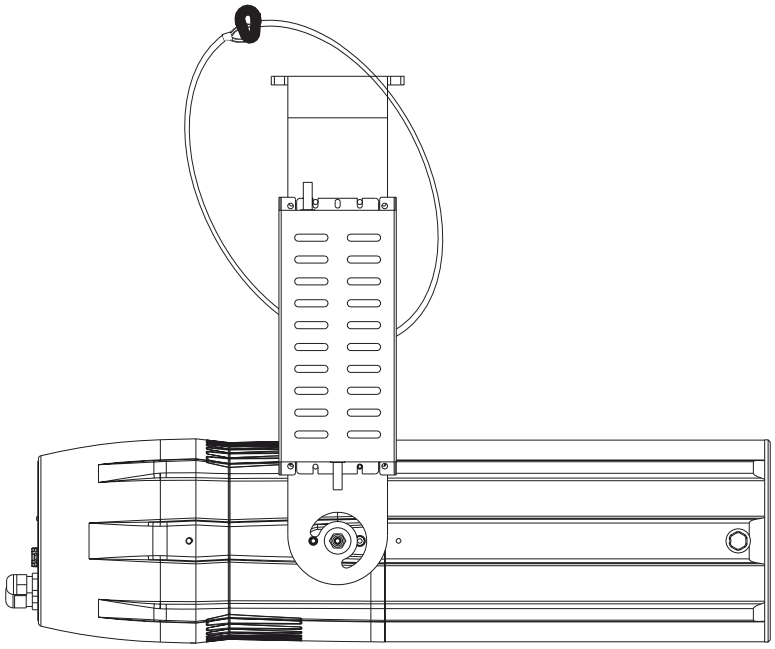


Warning!!
Always ensure that your support structure and fixing (bolts, clamps, etc...) are rated to support the weight of the fixture.

4.2 Safety chain

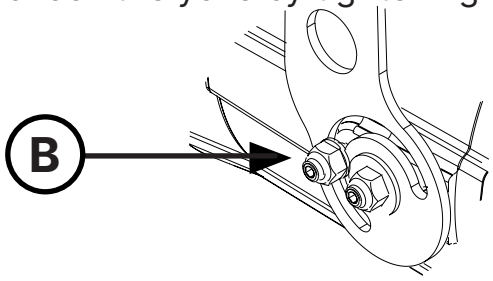
When hanging **LEDko EXT FullSpectrum RGBLA** it is recommended to use a safety chain, as required by current legislation. The safety chain must pass through the handles of the unit and then attached to the structure.

If using steel cables and chains not **Coemar**'s production, make sure they are suitable to support the weight of the unit according to normative UL/ETL (required: the weight of 6 complete devices for at least one hour).



4.3 Adjusting unit's tilt

1. In order to adjust the tilt of the unit simply loose the side screw "**B**" on the yoke, adjust the tilt and lock the yoke by tightening the screw again.

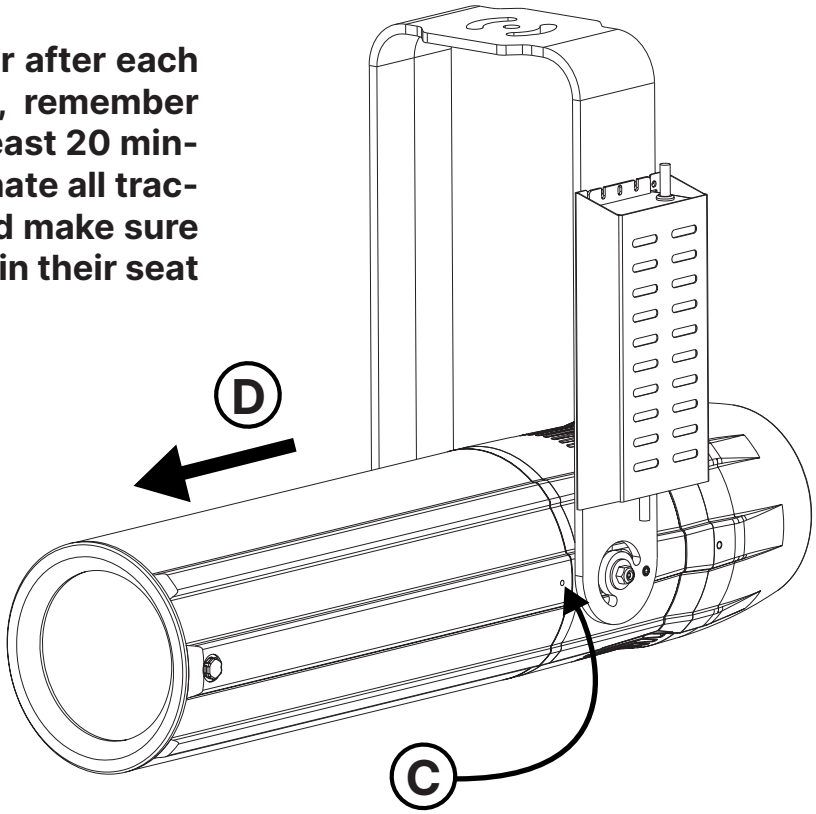


4.4 Optical group, framing system and gobos

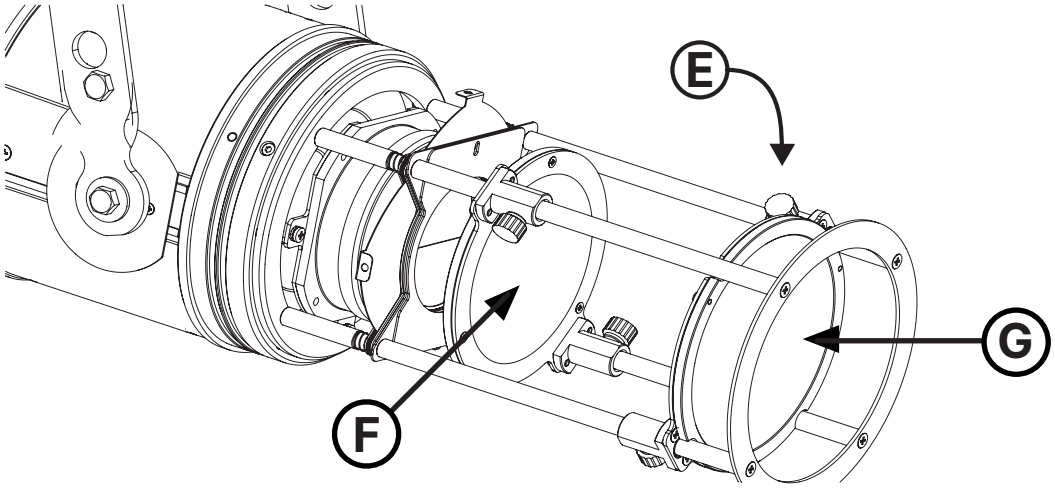
Follow these steps in order to configure the optical group properly:

1. Remove the two screws "**C**" placed on both sides of the optical holder tube;
2. Gently remove the optical holder tube "**D**" pulling it away from the body;

!Before closing the cover after each cleaning or adjustment, remember to heat the LEDs for at least 20 minutes, to be sure to eliminate all traces of humidity inside and make sure that the sheaths remain in their seat to avoid infiltrations.



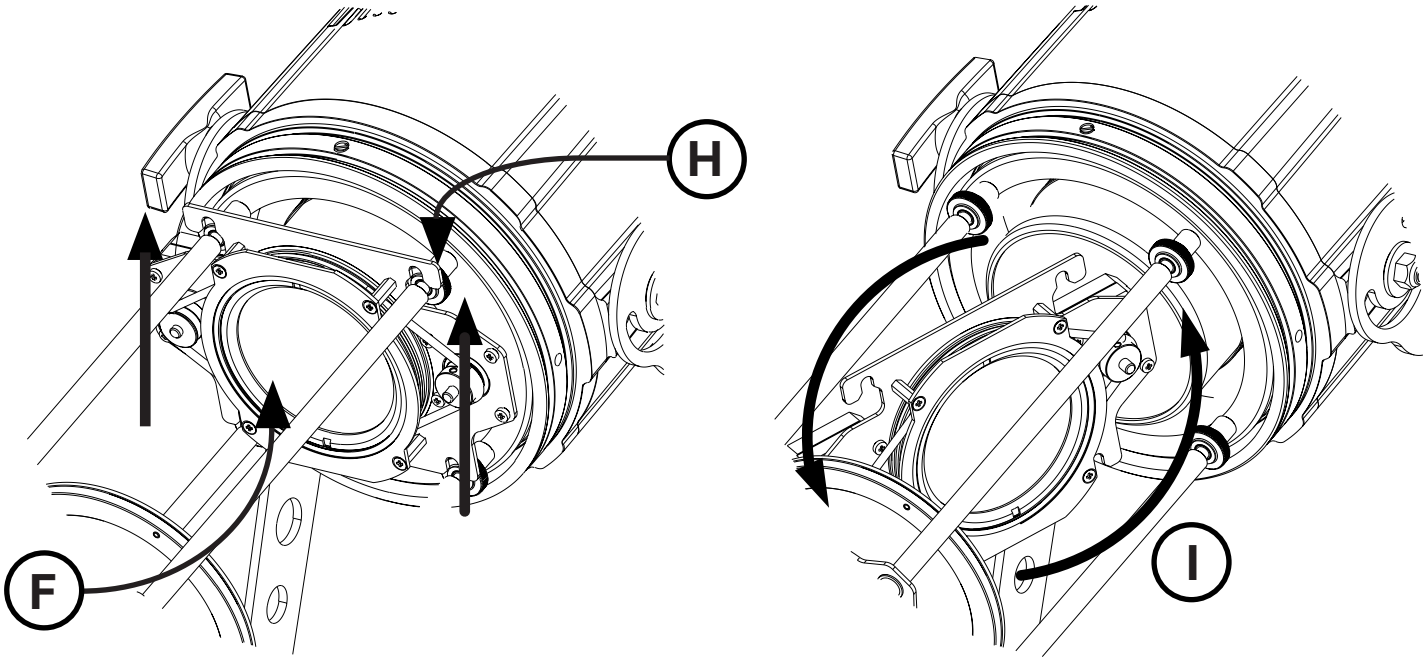
3. Loose the thumb screws "**E**" of the two lenses to set them at desired position. Turn on the fixture and check if the desired focus (lens "**F**") and zoom (lens "**G**") are correct, then tighten the thumb screws;



4.5 How to remove the 'Dual gobo rotator'

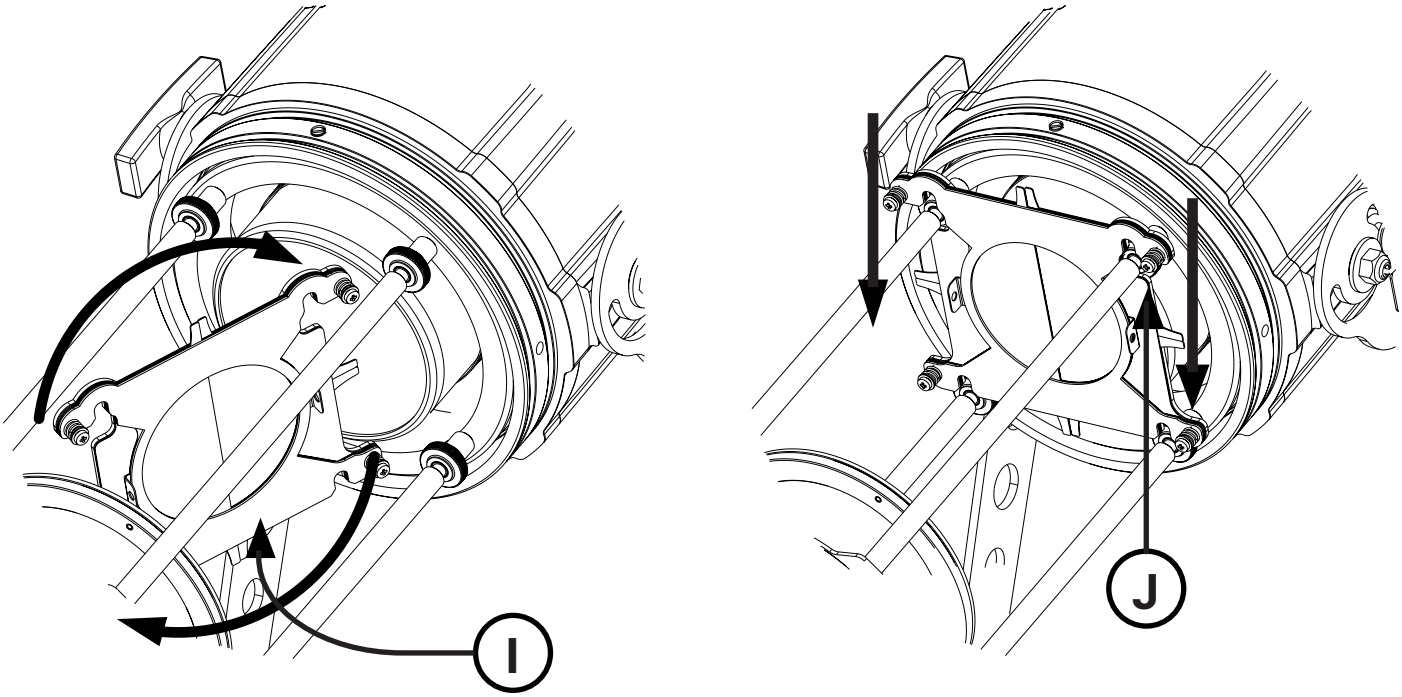
When you will receive **LEDko EXT**, the dual gobo rotator will already be installed in the projector "**F**"; then follow the instructions below to remove it:

Once the optical tube holder has been removed, disconnect the plug that connect the motors to the **LEDko EXT** body, unscrew the screws "**H**", pull the dual gobo rotator up by one/two centimeters, incline it "**I**" until it can be removed from the opticl group



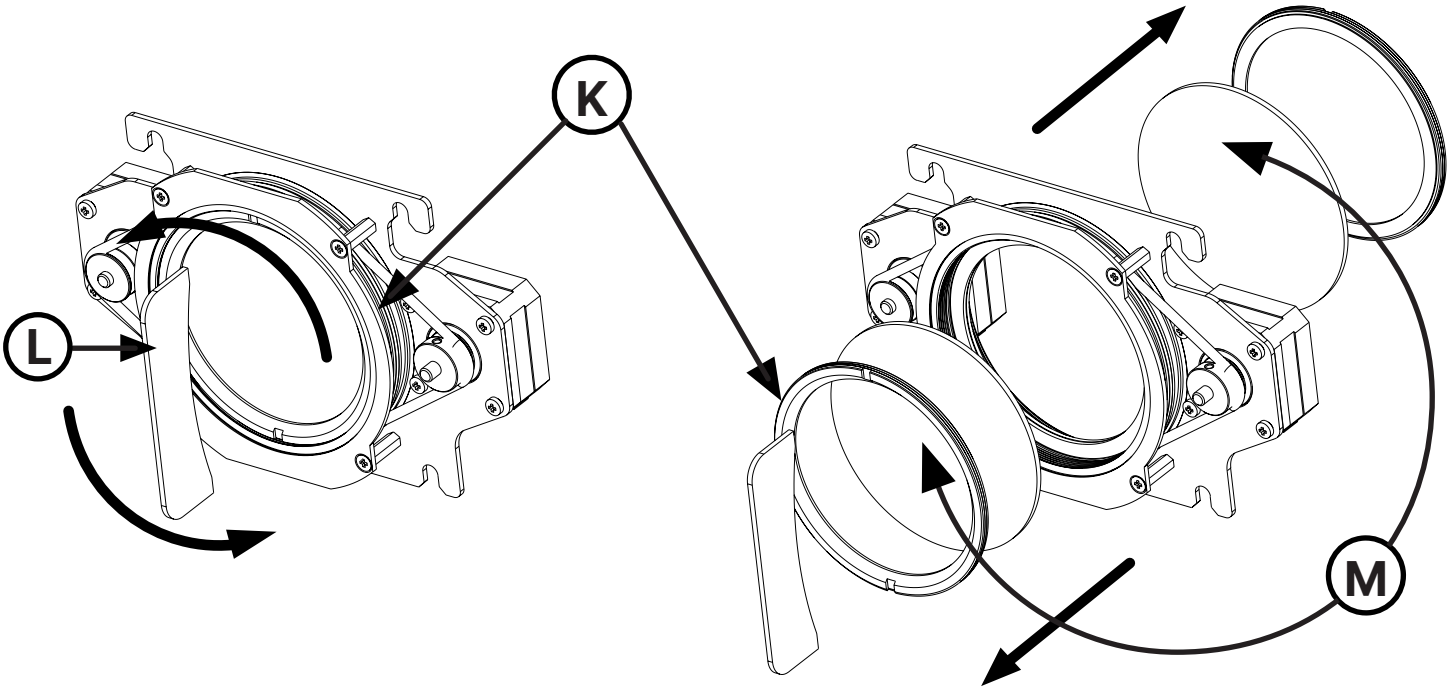
4.6 How to mount the four blade framing system

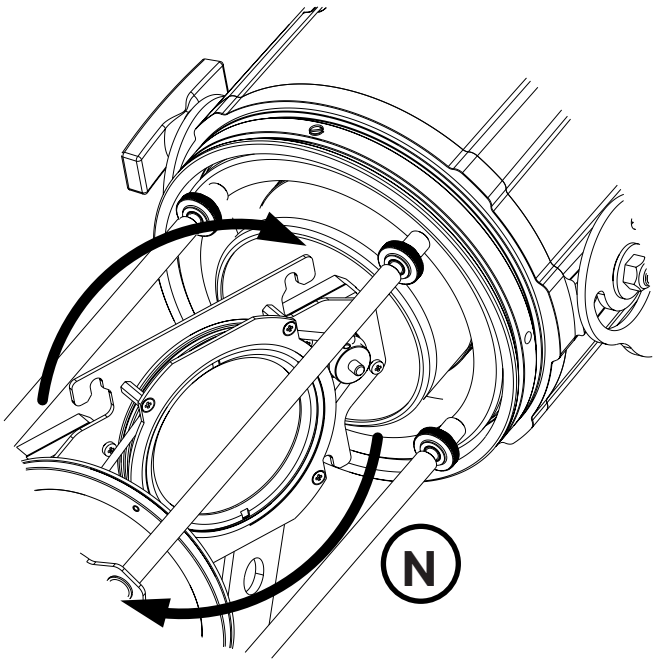
Once the dual gobo rotator has been removed, the four blade framing system can be inserted. Incline the four blade framing system "**I**", insert it into the optic group, place it in the appropriate slot and screw the previously unscrewed screws "**J**".



4.7 How to insert the glass gobos

To insert one or two (glass or metal) gobo, follow the 4.5 paragraph to remove the dual gobo rotator; then screw off the metal rings "**K**" that will keep the gobo steady with the provided **Wrench for gobo rotator (BC016A010)** "**L**", follow the same steps if you want to mount a second gobo on the back. Once removed one or both the rings, place your gobo "**M**" at will. Done this, proceed with the re-closing the dual gobo rotator. Then place the rings in the appropriate slot and re-tighten until the gobo is well fixed. At this point reinsert the dual gobo rotator keeping it slightly inclined "**N**" so that it can enter in the optical group and fix it in the slot. Finally reconnect the plug that goes from the motors of the dual gobo rotator to the body of the **LEDko EXT**. At this point following the DMX chart you should be able to move your gobo at your convenience.





5. Powering up

5.1 Operating voltage and frequency

The unit may operates at voltages ranges from 80 to 264 V at a frequency of 50 or 60 Hz. It is not needed to effect any setup procedures: **LEDko EXT FullSpectrum RGBLA** will automatically adjust its operation to suit any frequency or voltage within this range.

5.2 Connection to mains power

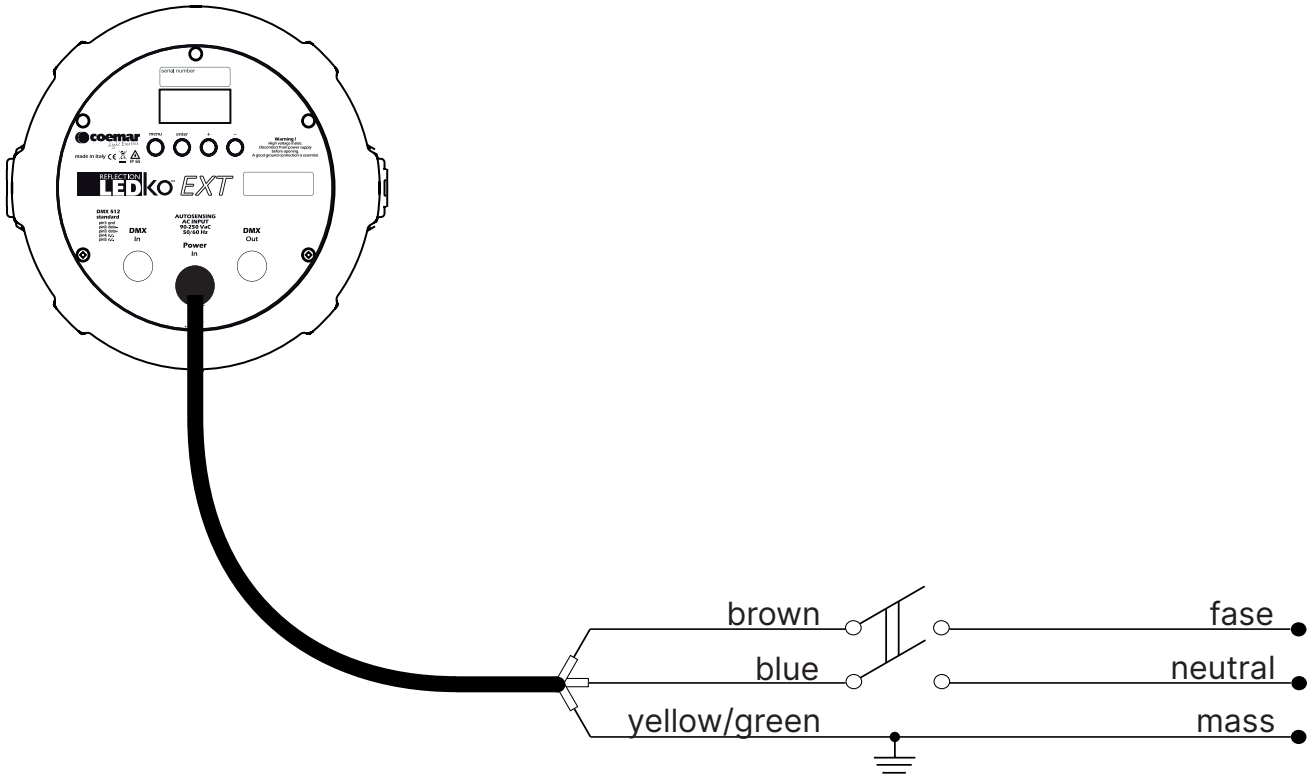
Mains cable characteristics

The mains cable that comes out from the projector is thermally resistant, complying to the most recent International standards. **Note:** in case of cable replacement, similar cable with comparable thermal resistant qualities must be used exclusively (cable 3 X 1,5 ø external 10 mm, rated 300/500 V, tested to 2 KV, operating temperature -40°C + 180°C, Coemar cod. CV5311).

Connection to mains power

LEDko EXT FullSpectrum RGBLA is equipped with an internal cable without power plug. The max absorption of **LEDko EXT FullSpectrum RGBLA** is reported in the following table:

- 230 V, 1.26 A constant during normal exercise.
- 115 V, 2.53 A constant during normal exercise.



Warning!!

The use of a thermal/magnetic circuit breaker is recommended. Strict adherence to regulatory norms is strongly recommended.

LEDko EXT FullSpectrum RGBLA should not be powered through a dimmer as this may damage the internal switching power supply.

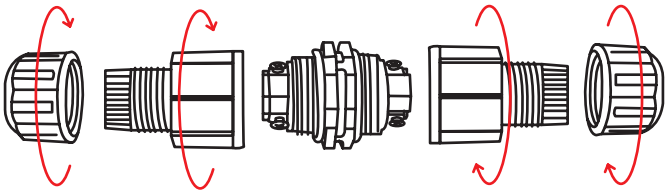
Prior to connecting the device to mains power, ensure that the mains characteristics are within the recommended range for the use of **LEDko EXT FullSpectrum RGBLA**.

All cabling and connections should be carried out by a suitably qualified personnel.

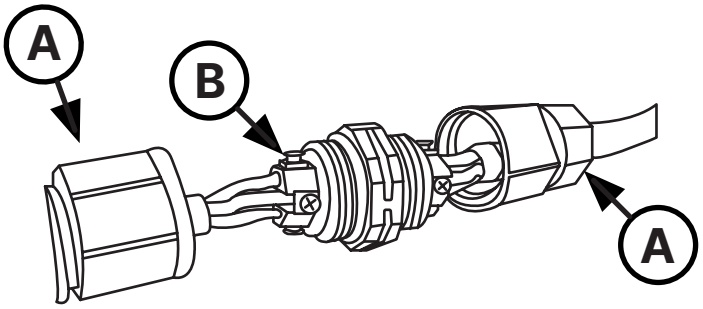
6. DMX control signal connections

6.1 Control signal connection by IP67 Junction Plugs

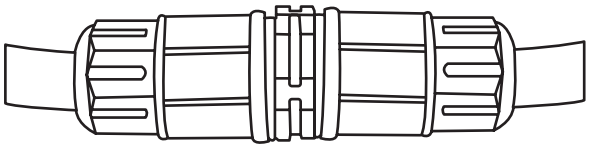
Important! Protect all connections from moisture or water.
The moisture or the water can cause corrosion in unprotected cable connections. They can also be along the inside of cables at breaks (for example at connection points) and into fixtures because of the vacuum effect of temperature fluctuations inside fixtures. To protect connections and fixtures from moisture or water, use the Junction connectors that are protected to IP67 or higher.
To connect them follow the instruction below:



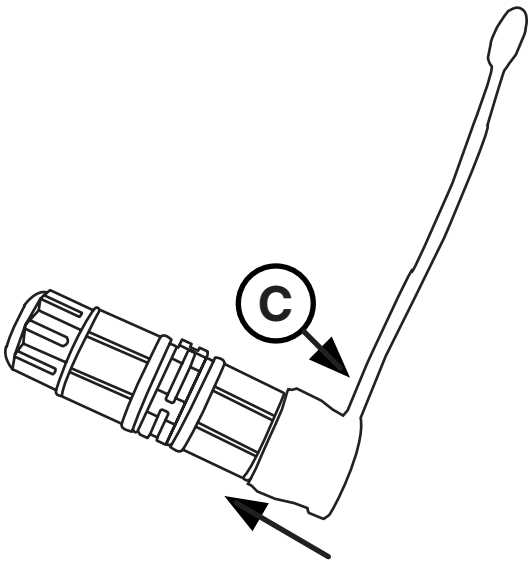
1. Unscrew the left cable gland and right cable gland.



2. Insert the electric cables through the cable glands "**A**", tighten the wires inside the Pins "**B**" by screwdriver.
N.B. In order to make the product work properly it is important to connect the cables following the diagram below:
Pin 1 > Ground Wire
Pin 2 > Black Wire (negative)
Pin 3 > White Wire (positive)



3. Screw the both cable gland tightly (tighten is very important for waterproof).
Note: Once the connection of the line is completed and the last projector's DMX OUT connector is unused, you need to put on the DMX end of line closure cap "**C**" (RME34/G), indispensable for the last projector of the line.



7. Turning on the projector

After having followed the preceding steps described, proceed with the power supply and turn on the projector connecting it to the mains power. The software version installed on the internal microprocessors will be shown on the display, suddenly it will show the current DMX addressing. If the address blinks, it means that the DMX signal has not been received. Check the connection cable and the mixer functioning.

7.1 DMX address of the unit

Each projector can use 19, 10, 4 address channels and Studio and RGB modes for its complete operation and is controlled by a DMX 512 signal.

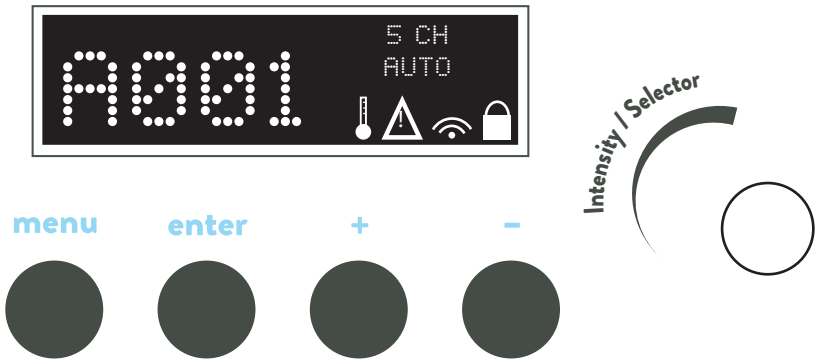
DMX addressing

When powered up initially, each projector will show A001, which indicates DMX address 001; for example, when set at 19 channels a projector thus addressed will respond to commands of channel 1 to 19 from your DMX 512 controller. A second unit must be addressed as A020, a third one as A038 and so on. The operation must be carried out on every **LEDko EXT FullSpectrum RGBLA** which has an address different from A001.

Altering the DMX address:

1. Press the + or – button until the display shows the required DMX address. The digits on the display will blink to indicate that the variation has not been registered.
2. Press the enter key to confirm your selection. The digits on the display panel will cease to blink and the projector will now respond to the new address.

Note: by holding the + or – button down the scrolling will be faster; thus allowing a faster selection



It means the projector has entered protection

It means there is an error, it flashes intermittently with address

Wireless Enabled

The keys are locked

8. DMX chart

!Please note: the channels relating to the control of the gobos rotation speed (**gobos rotation speed, gobo 1 and speed, gobo 2 speed**) **can be used only with the dual gobo rotator is mounted**, when the four blade framing system is mounted ignore the channels dedicated to the gobo rotations.

8.1 DMX Chart 19, 10, 4 channels

channel			function	type of control	effect	decimal			percentage		
19	10	4									
1	**1**	**1[2]**	master dimmer	proportional	adjust luminous output intensity from 0 to 100%	0	-	255	0%	-	100%
2	**2**	**-**	red	proportional	proportional control of the color percentage from 0 to 100%	0	-	255	0%	-	100%
3	**3**	**-**	green	proportional	proportional control of the color percentage from 0 to 100%	0	-	255	0%	-	100%
4	**4**	**-**	blue	proportional	proportional control of the color percentage from 0 to 100%	0	-	255	0%	-	100%
5	**5**	**-**	spare channel	step	no effect	0	-	255	0%	-	100%
6	**6**	**-**	lime	proportional	proportional control of the color percentage from 0 to 100%	0	-	255	0%	-	100%
7	**7**	**-**	amber	proportional	proportional control of the color percentage from 0 to 100%	0	-	255	0%	-	100%
8	**-**	**-**	strobe	step	no effect	0	-	9	0%	-	4%
				proportional	pulse effect	10	-	57	4%	-	22%
				step	no effect	58	-	255	23%	-	100%
9			dimmer fine	proportional	fine dimmer control 16 bit	0	-	255	0%	-	100%
10	**-**	**-**	special functions	step	no effect	0	-	71	0%	-	28%
					600 Hz	72	-	84	28%	-	33%
					fan at auto-silent speed	85	-	133	33%	-	52%
					enables the automatic display blackout	134	-	185	53%	-	73%
					disables the automatic display blackout	186	-	199	73%	-	78%
					LED control frequency tuning 1.000 Hz	200	-	205	78%	-	80%
					LED control frequency tuning 3.000 Hz	206	-	211	81%	-	83%
					LED control frequency tuning 6.000 Hz	212	-	217	83%	-	85%
					LED control frequency tuning 8.000 Hz	218	-	223	85%	-	87%
					LED control frequency tuning 10.000 Hz	224	-	229	88%	-	90%
					LED control frequency tuning 12.000 Hz	230	-	235	90%	-	92%
					LED control frequency tuning 14.000 Hz	236	-	241	93%	-	95%
					LED control frequency tuning 16.000 Hz	242	-	247	95%	-	97%
					LED control frequency tuning 19.000 Hz	248	-	255	97%	-	100%

11[1]	-	-	red tone	step	no effect	0	-	9	0%	-	4%
					COR01 - GELS RED 1	10	-	34	4%	-	13%
					COR02 - GELS RED 2	35	-	59	14%	-	23%
					COR03 - GELS RED 3	60	-	84	24%	-	33%
					COR04 - GELS RED 4	85	-	109	33%	-	43%
					COR05 - GELS RED 5	110	-	134	43%	-	53%
					COR06 - GELS RED 6	135	-	159	53%	-	62%
					COR07 - GELS RED 7	160	-	184	63%	-	72%
					COR08 - GELS RED 8	185	-	209	73%	-	82%
					COR09 - GELS RED 9	210	-	234	82%	-	92%
					COR10 - GELS RED 10	235	-	255	92%	-	100%
12[1]	-	-	green tone	step	no effect	0	-	9	0%	-	4%
					COG01 - GELS GREEN 1	10	-	34	4%	-	13%
					COG02 - GELS GREEN 2	35	-	59	14%	-	23%
					COG03 - GELS GREEN 3	60	-	84	24%	-	33%
					COG04 - GELS GREEN 4	85	-	109	33%	-	43%
					COG05 - GELS GREEN 5	110	-	134	43%	-	53%
					COG06 - GELS GREEN 6	135	-	159	53%	-	62%
					COG07 - GELS GREEN 7	160	-	184	63%	-	72%
					COG08 - GELS GREEN 8	185	-	209	73%	-	82%
					COG09 - GELS GREEN 9	210	-	234	82%	-	92%
					COG10 - GELS GREEN 10	235	-	255	92%	-	100%
13[1]	-	-	blue tone	step	no effect	0	-	9	0%	-	4%
					COB01 - GELS BLUE 1	10	-	34	4%	-	13%
					COB02 - GELS BLUE 2	35	-	59	14%	-	23%
					COB03 - GELS BLUE 3	60	-	84	24%	-	33%
					COB04 - GELS BLUE 4	85	-	109	33%	-	43%
					COB05 - GELS BLUE 5	110	-	134	43%	-	53%
					COB06 - GELS BLUE 6	135	-	159	53%	-	62%
					COB07 - GELS BLUE 7	160	-	184	63%	-	72%
					COB08 - GELS BLUE 8	185	-	209	73%	-	82%
					COB09 - GELS BLUE 9	210	-	234	82%	-	92%
					COB10 - GELS BLUE 10	235	-	255	92%	-	100%
14	-	-	white tone	step	no effect	0	-	9	0%	-	4%
					2.700 K	10	-	30	4%	-	12%
				proportional	proportional value from 2.700 K to 3.200 K	31	-	52	12%	-	20%
				step	3.200 K	53	-	74	21%	-	29%
				proportional	proportional value from 3.200 K to 4.000 K	75	-	96	29%	-	38%
				step	4.000 K	97	-	118	38%	-	46%
				proportional	proportional value from 4.000 K to 5.000 K	119	-	140	47%	-	55%
				step	5.000 K	141	-	162	55%	-	64%
				proportional	proportional value from 5.000 K to 5.600 K	163	-	184	64%	-	72%
				step	5.600 K	185	-	206	73%	-	81%
				proportional	proportional value from 5.600 K to 6.500 K	207	-	228	81%	-	89%
				step	6.500 K	229	-	255	90%	-	100%
15[2]	-	-	green saturation	step	no effect	0			0%		
				proportional	exalts the green color in the mixing and diminishes the presence of magenta	1	-	127	0%	-	50%
				step	no effect	128			50%		
				proportional	diminishes the presence of green in the mixing and exalts the green color	129	-	254	51%	-	99%
				step	no effect	255			100%		
16[3]	-	-	saturation	proportional	the white tone fades to the tone built with the RGBLA channels	0	-	255	0%	-	100%

17	**8**	**2**	gobos rotation speed	proportional	adjust proportionally the both gobo's speed	0	-	255	0%	-	100%
18	**9**	**3**	gobo 1 speed	step	gobo in stop	0			0%		
				proportional	control the gobo 1 speed counterclockwise (from fast to slow)	1	-	125	0%	-	49%
				step	gobo in stop	126	-	129	49%	-	51%
				proportional	control the gobo 1 speed clockwise (from slow to fast)	130	-	254	51%	-	99%
				step	gobo in stop	255			100%		
19	**10**	**4**	gobo 2 speed	step	gobo in stop	0			0%		
				proportional	control the gobo 2 speed counterclockwise (from fast to slow)	1	-	125	0%	-	49%
				step	gobo in stop	126	-	129	49%	-	51%
				proportional	control the gobo 2 speed clockwise (from slow to fast)	130	-	254	51%	-	99%
				step	gobo in stop	255			100%		

Note 1: colors macros of channels 11-12-13 can also be obtained through the mixing of channels 2-3-4-6-7.

Note 2: the rest position of green saturation is 128. Diminishing the DMX value augments the presence of the green color. Increasing the DMX value augments the presence of magenta.

Note 3: increasing the value of the saturation DMX channel the white tone (channel 14) will fade to the color selected by the channel 2-3-4-6-7.

8.2 DMX Chart Studio mode

channel	function	type of control	effect	decimal			percentage		
1	master dimmer	proportional	adjust luminous output intensity from 0 to 100%	0	-	255	0%	-	100%
2	white tone	step	3.200 K	0	-	10	0%	-	4%
			2.700 K	11		16	4%		6%
			2.800 K	17		22	7%		9%
			2.900 K	23		28	9%		11%
			3.000 K	29		34	11%		13%
			3.100 K	35		40	14%		16%
			3.200 K	41		46	16%		18%
			3.300 K	47		52	18%		20%
			3.400 K	53		58	21%		23%
			3.500 K	59		64	23%		25%
			3.600 K	65		70	25%		27%
			3.700 K	71		76	28%		30%
			3.800 K	77		82	30%		32%
			3.900 K	83		88	33%		35%
			4.000 K	89		94	35%		37%
			4.100 K	95		100	37%		39%
			4.200 K	101		106	40%		42%
			4.300 K	107		112	42%		44%
			4.400 K	113		118	44%		46%
			4.500 K	119		124	47%		49%
			4.600 K	125		130	49%		51%
			4.700 K	131		136	51%		53%
			4.800 K	137		142	54%		56%
			4.900 K	143		148	56%		58%
			5.000 K	149		154	58%		60%
			5.100 K	155		160	61%		63%
			5.200 K	161		166	63%		65%
			5.300 K	167		172	65%		67%
			5.400 K	173		178	68%		70%
			5.500 K	179		184	70%		72%
			5.600 K	185		190	73%		75%
			5.700 K	191		196	75%		77%
			5.800 K	197		202	77%		79%
			5.900 K	203		208	80%		82%
			6.000 K	209		214	82%		84%
			6.100 K	215		220	84%		86%
			6.200 K	221		226	87%		89%
			6.300 K	227		232	89%		91%
			6.400 K	233		238	91%		93%
			6.500 K	239		244	94%		96%
			5.600 K	245		255	96%		100%
3[1]	green saturation	step	no effect	0			0%		
		proportional	exalts the green color in the mixing and diminishes the presence of magenta	1	-	127	0%	-	20%
		step	no effect	128			50%		
		proportional	diminishes the presence of green in the mixing and exalts the green color	129	-	254	51%	-	99%
		step	no effect	255			100%		
4[2]	saturation	proportional	the white tone fades to the tone built with the hue channel	0	-	255	0%	-	100%

5	hue	proportional	reproduce the color crossfades around the color space	0	-	255	0%	-	100%
6	dimmer fine	proportional	fine dimmer control 16 bit	0	-	255	0%	-	100%
7	special functions	step	no effect	0	-	71	0%	-	28%
			600 Hz	72	-	84	28%	-	33%
			no effect	85	-	108	33%	-	42%
			fan at auto-silent speed	109	-	120	43%	-	47%
		proportional	fan speed control	121	-	133	47%	-	52%
		step	enables the automatic display blackout	134	-	185	53%	-	73%
			disables the automatic display blackout	186	-	199	73%	-	78%
			LED control frequency tuning 1.000 Hz	200	-	205	78%	-	80%
			LED control frequency tuning 3.000 Hz	206	-	211	81%	-	83%
			LED control frequency tuning 6.000 Hz	212	-	217	83%	-	85%
			LED control frequency tuning 8.000 Hz	218	-	223	85%	-	87%
			LED control frequency tuning 10.000 Hz	224	-	229	88%	-	90%
			LED control frequency tuning 12.000 Hz	230	-	235	90%	-	92%
			LED control frequency tuning 14.000 Hz	236	-	241	93%	-	95%
			LED control frequency tuning 16.000 Hz	242	-	247	95%	-	97%
			LED control frequency tuning 19.000 Hz	248	-	255	97%	-	100%
8	gobos rotation speed	proportional	adjust proportionally the both gobo's speed	0	-	255	0%	-	100%
9	gobo 1 speed	step	gobo in stop	0			0%		
		proportional	control the gobo 1 speed counterclockwise (from fast to slow)	1	-	125	0%	-	49%
		step	gobo in stop	126	-	129	49%	-	51%
		proportional	control the gobo 1 speed clockwise (from slow to fast)	130	-	254	51%	-	99%
		step	gobo in stop	255			100%		
10	gobo 2 speed	step	gobo in stop	0			0%		
		proportional	control the gobo 2 speed counterclockwise (from fast to slow)	1	-	125	0%	-	49%
		step	gobo in stop	126	-	129	49%	-	51%
		proportional	control the gobo 2 speed clockwise (from slow to fast)	130	-	254	51%	-	99%
		step	gobo in stop	255			100%		

Note 1: the rest position of green saturation is 128. Diminishing the DMX value augments the presence of the green color. Increasing the DMX value augments the presence of magenta.

8.3 DMX Chart RGB mode

channel	function	type of control	effect	decimal	percentage
1	master dimmer	proportional	adjust luminous output intensity from 0 to 100%	0 - 255	0% - 100%
2	dimmer fine	proportional	fine dimmer control 16 bit	0 - 255	0% - 100%
3	red	proportional	proportional control of the color percentage from 0 to 100%	0 - 255	0% - 100%
4	green	proportional	proportional control of the color percentage from 0 to 100%	0 - 255	0% - 100%
5	blue	proportional	proportional control of the color percentage from 0 to 100%	0 - 255	0% - 100%
6	white tone	step	no effect	0 - 9	0% - 4%
		step	2.700 K	10 - 30	4% - 12%
		proportional	proportional value from 2.700 K to 3.200 K	31 - 52	12% - 20%
		step	3.200 K	53 - 74	21% - 29%
		proportional	proportional value from 3.200 K to 4.000 K	75 - 96	29% - 38%
		step	4.000 K	97 - 118	38% - 46%
		proportional	proportional value from 4.000 K to 5.000 K	119 - 140	47% - 55%
		step	5.000 K	141 - 162	55% - 64%
		proportional	proportional value from 5.000 K to 5.600 K	163 - 184	64% - 72%
		step	5.600 K	185 - 206	73% - 81%
		proportional	proportional value from 5.600 K to 6.500 K	207 - 228	81% - 89%
		step	6.500 K	229 - 255	90% - 100%
7	saturation	proportional	the white tone fades to the tone built with the hue channel	0 - 255	0% - 100%
8	strobe effect	step	no effect	0 - 9	0% - 4%
		proportional	pulse effect	10 - 57	4% - 22%
		step	no effect	58 - 255	23% - 100%
9	dimmer fine	step	no effect	0 - 71	0% - 28%
			600 Hz	72 - 84	28% - 33%
			fan at auto-silent speed	85 - 133	33% - 52%
			enables the automatic display blackout	134 - 185	53% - 73%
			disables the automatic display blackout	186 - 199	73% - 78%
			LED control frequency tuning 1.000 Hz	200 - 205	78% - 80%
			LED control frequency tuning 3.000 Hz	206 - 211	81% - 83%
			LED control frequency tuning 6.000 Hz	212 - 217	83% - 85%
			LED control frequency tuning 8.000 Hz	218 - 223	85% - 87%
			LED control frequency tuning 10.000 Hz	224 - 229	88% - 90%
			LED control frequency tuning 12.000 Hz	230 - 235	90% - 92%
			LED control frequency tuning 14.000 Hz	236 - 241	93% - 95%
			LED control frequency tuning 16.000 Hz	242 - 247	95% - 97%
			LED control frequency tuning 19.000 Hz	248 - 255	97% - 100%

10	gobos rotation speed	proportional	adjust proportionally the both gobo's speed	0	-	255	0%	-	100%
11	gobo 1 speed	step	gobo in stop	0			0%		
		proportional	control the gobo 1 speed counterclockwise (from fast to slow)	1	-	125	0%	-	49%
		step	gobo in stop	126	-	129	49%	-	51%
		proportional	control the gobo 1 speed clockwise (from slow to fast)	130	-	254	51%	-	99%
		step	gobo in stop	255			100%		
12	gobo 2 speed	step	gobo in stop	0			0%		
		proportional	control the gobo 2 speed counterclockwise (from fast to slow)	1	-	125	0%	-	49%
		step	gobo in stop	126	-	129	49%	-	51%
		proportional	control the gobo 2 speed clockwise (from slow to fast)	130	-	254	51%	-	99%
		step	gobo in stop	255			100%		

9. Display panel functions

9.1 Quick guide to menu

To access the functions menus just press the MENU button. Then press + or – buttons to scroll the pages and press the ENTER button to access to any other function. By suitably using all the functions of **LEDko EXT FullSpectrum RGBLA**, which can be activated through its display panel, it is possible to change some of the parameters and to add some functions. Changing the preset settings made by **Coemar** can vary the functions of the projector so that it will respond differently to the controller; therefore carefully read about the functions described here before carrying out any possible selection.

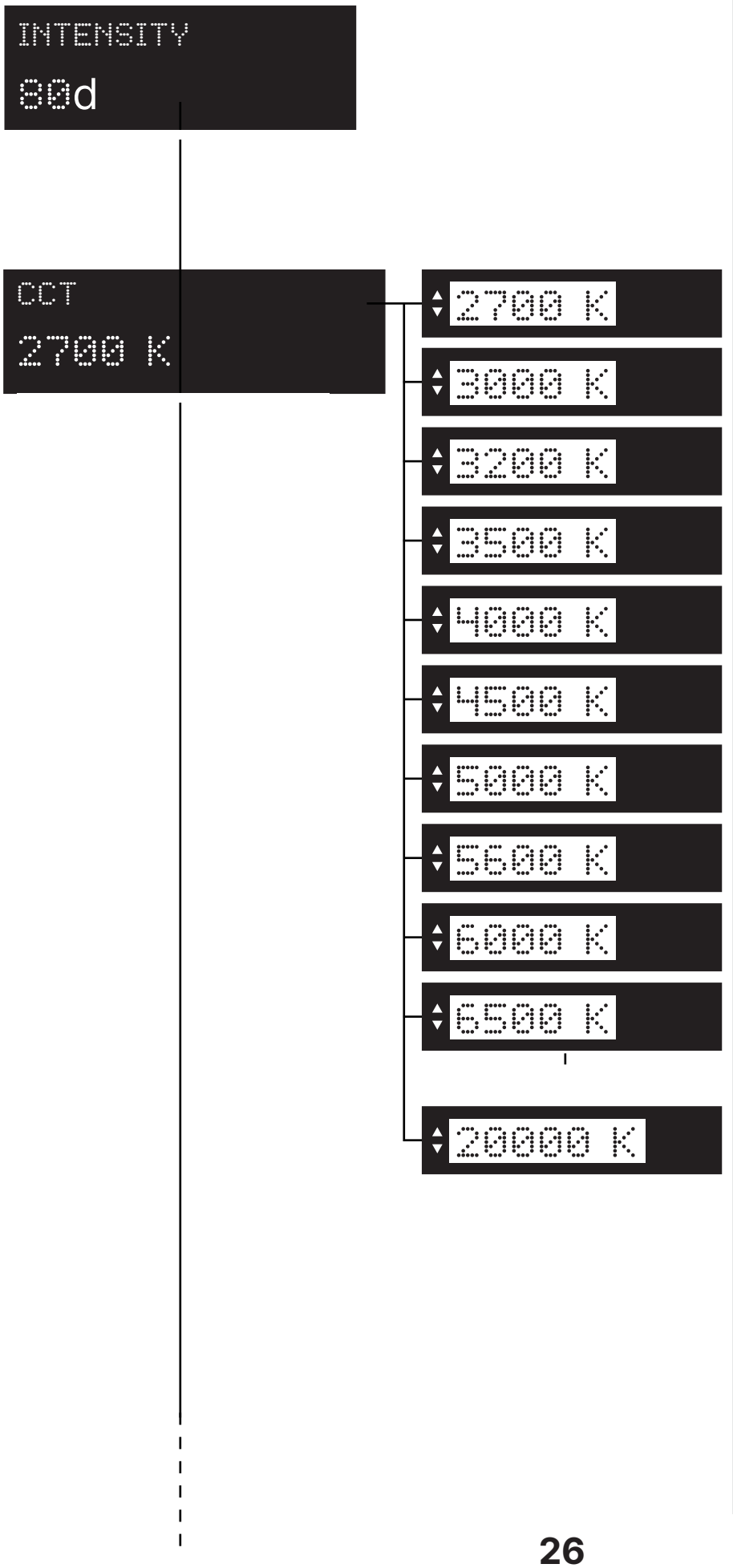
9.2 Rapid count

Through the display panel of **LEDko EXT FullSpectrum RGBLA** it is possible to quickly change the various numbers displayed for the different functions in the following 3 manners:

1. Pressing the + or – buttons will cause the count to be quicker.
2. Pressing first + and then – and then holding them down simultaneously will cause the numbers to jump to the highest value.
3. Pressing first – and then + and then holding them down simultaneously will cause the number to jump to the lowest value.

9.3 Main functions menu (FUNC)

By pressing the "**MENU**" button you can enter the **LEDko EXT FS RGBLA +** main menu.

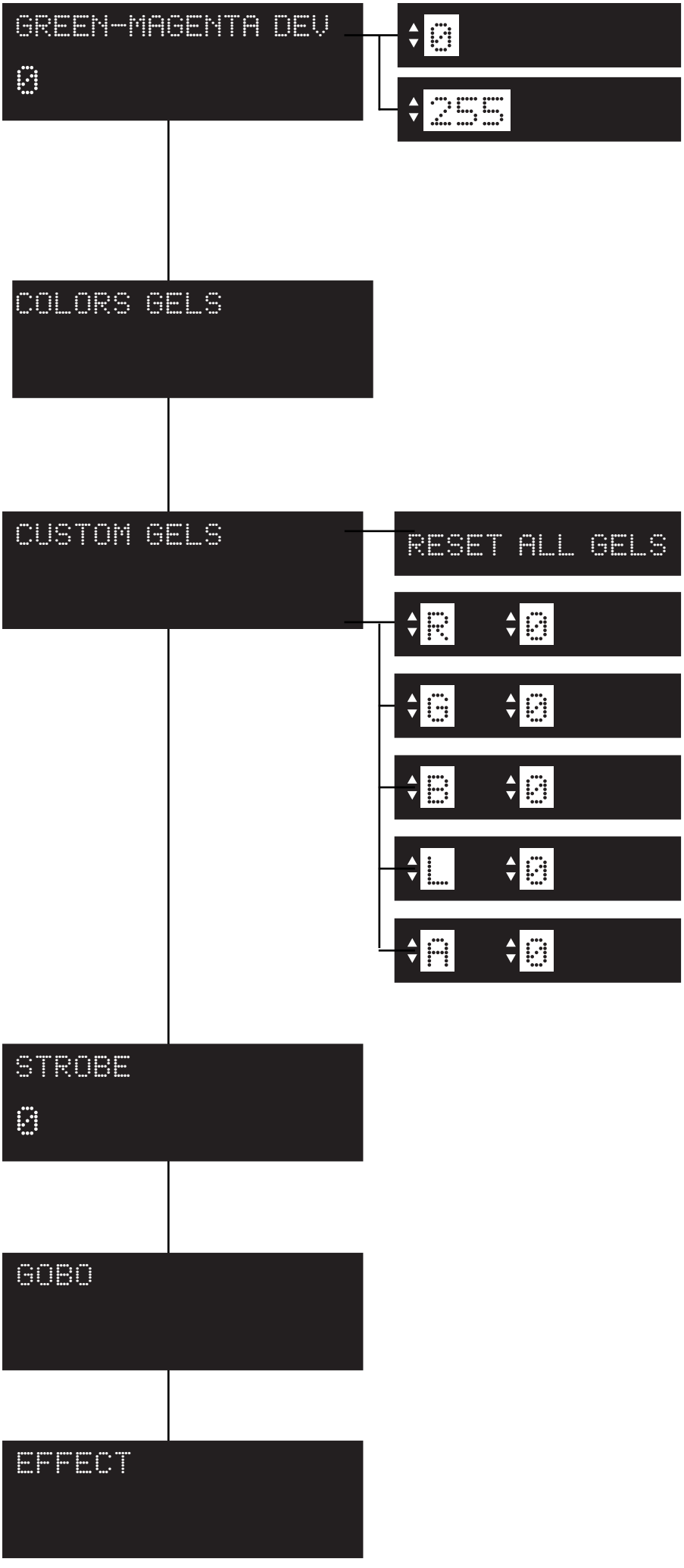


INTENSITY:

Allows to adjust the luminous output intensity from 0 to 255 (d: decimal units).

CCT:

This channel offers a preset library of various white CCT with a range that goes from 2.700 K
and up to 20.000 K, manually selectable without the need of a DMX console.



GREEN-MAGENTA DEV:
Allows to adjust the luminous output intensity from 0 to 255 (d: decimal units).

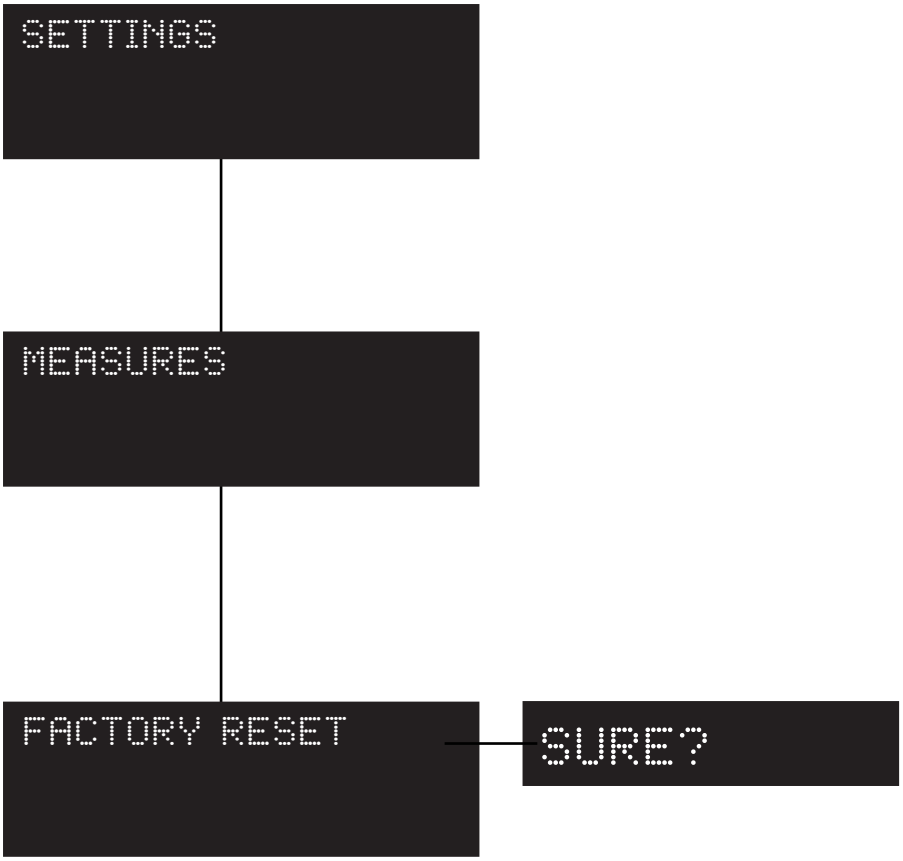
COLOR GELS:
All the gels presets will appear under this menu.

CUSTOM GELS:
This settings allows you to create your own custom gel by mixing the six color at your will. Every color is adjustable from 0 to 255.

STROBE:
Manually sets the strobe DMX channel.

GOBO:
Gobo settings

EFFECTS:
Effects settings (section **EFFECTS**).

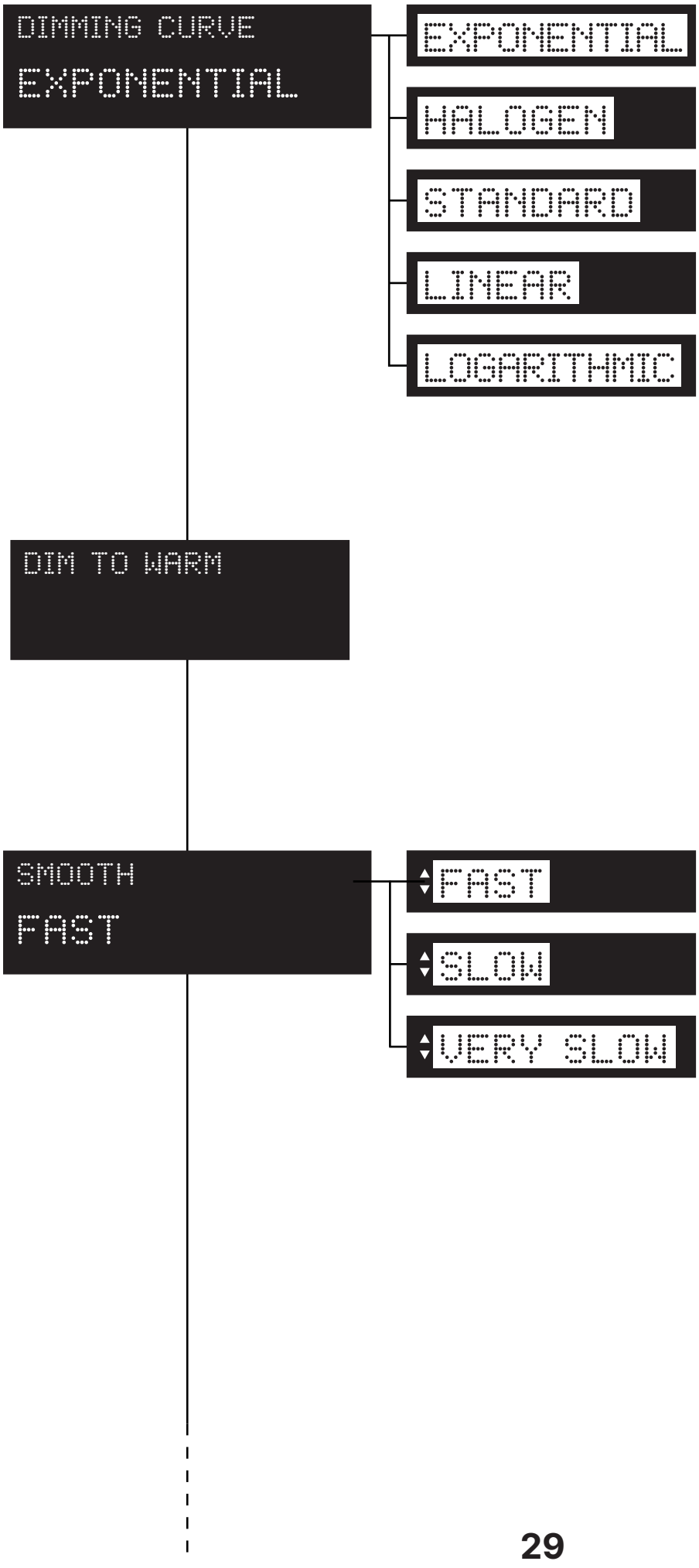


SETTINGS:
Manually sets various settings of the projector (section **SETTINGS**).

MEASURES:
Check all the measures and product status (section **MEASURES**).

FACTORY RESET:
Allows to return to the factory settings:
Light Intensity: 80
DMX Channels: 16
Fan: Auto mode.

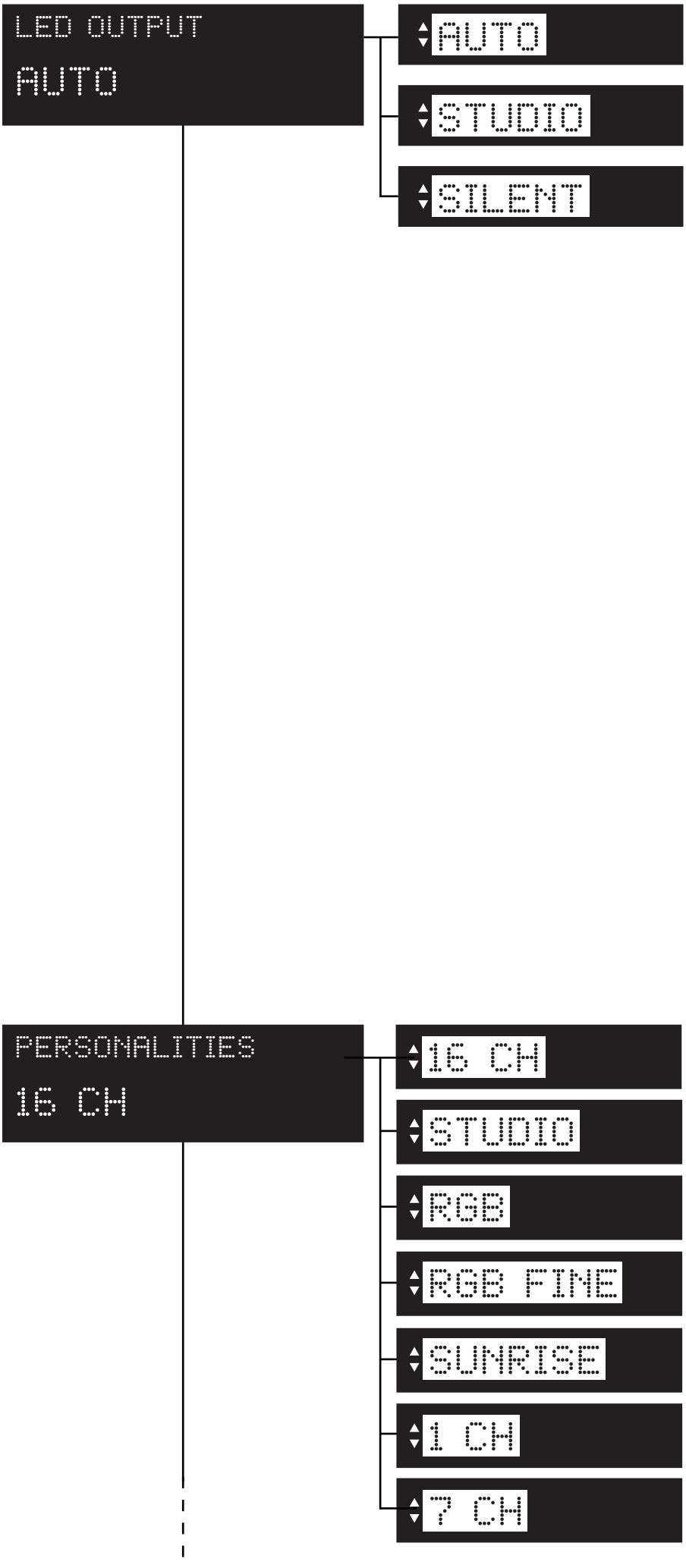
9.4 Settings



DIMMING CURVE:
It allows the selection of different dimmer curves: exponential (default), halogen, standard, linear and logarithmic.

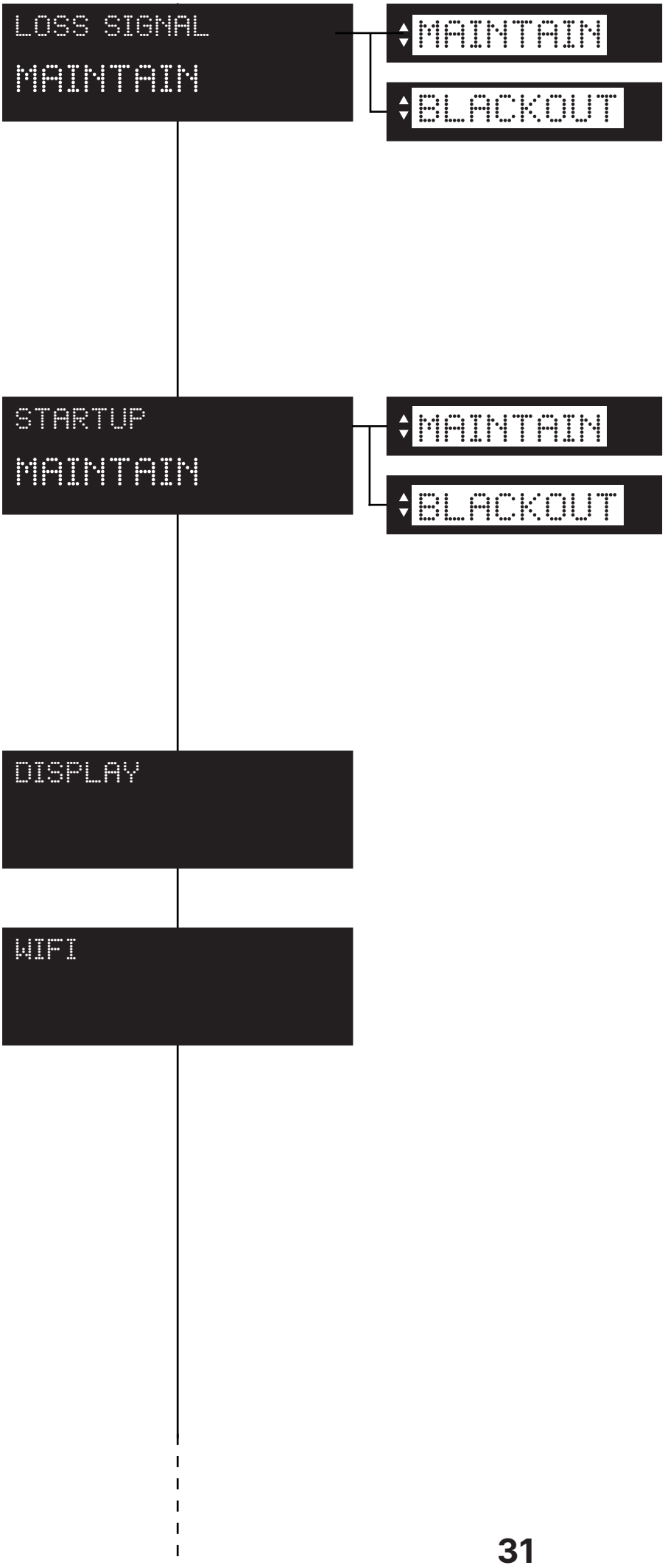
DIM TO WARM:
Inserts a softening of the dimmer dynamics and red shift. It works for all the CCTs.

SMOOTH:
Allows to change the speed of every dimming curve between **FAST** (standard)**, SLOW, VERY SLOW**.



LED OUTPUT:
Manually sets the fan mode.
AUTO: Fan with automatic operating speed to guarantee maximum light output in all conditions of use, ideal for live events, exhibitions and architectural installations.
STUDIO: Fan at automatic operation speed with limited speed to guarantee silent operation of the product (moderately limited light output, will decrease in case of overheat) ideal for broadcast or theatre applications.
SILENT: This setting will keep the speed of the fan at the minimum level (moderately limited light output, will decrease in case of overheat) ideal for environments that require maximum silence.

PERSONALITIES:
It is possible to choose between **16**, **STUDIO**, **RGB**, **RGB FINE**, **SUNRISE**, **1** or **7** modalities, in which the projector will operate.



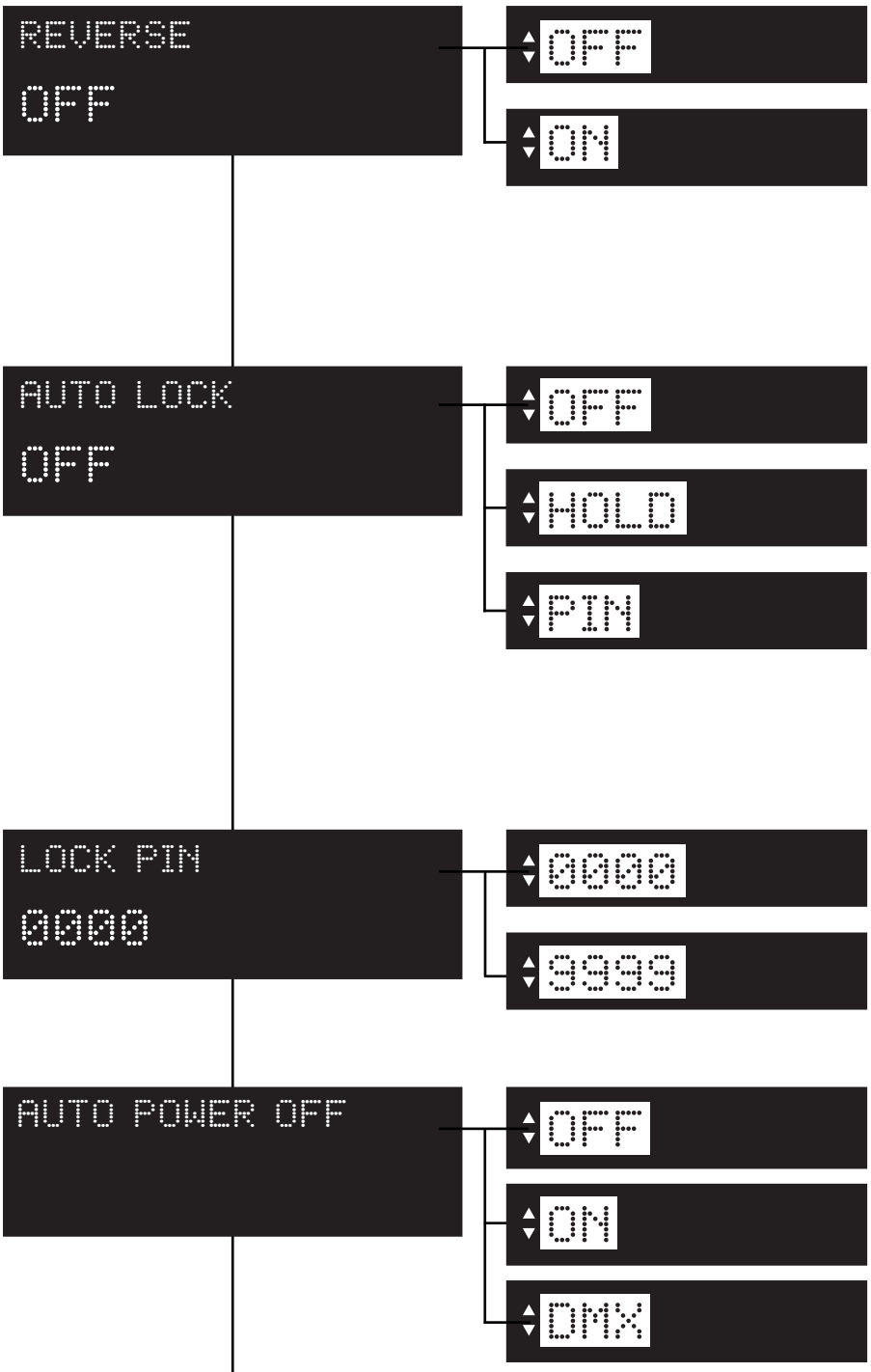
LOSS SIGNAL:
It is possible to choose between “maintain” (this function allows to keep the settings even in case of **LOSS SIGNAL**) and “blackout” (in case of **LOSS SIGNAL**, the projector will go into blackout).

STARTUP:
It is possible to choose between “maintain” (this function allows to keep the settings in case of **STARTUP**) and “blackout” (in case of **STARTUP**, the projector will go into blackout).

DISPLAY:
Display settings (section **DISPLAY**)

WIFI:
Wi-Fi settings (section **WIFI - OPTIONAL**)

9.5 Display

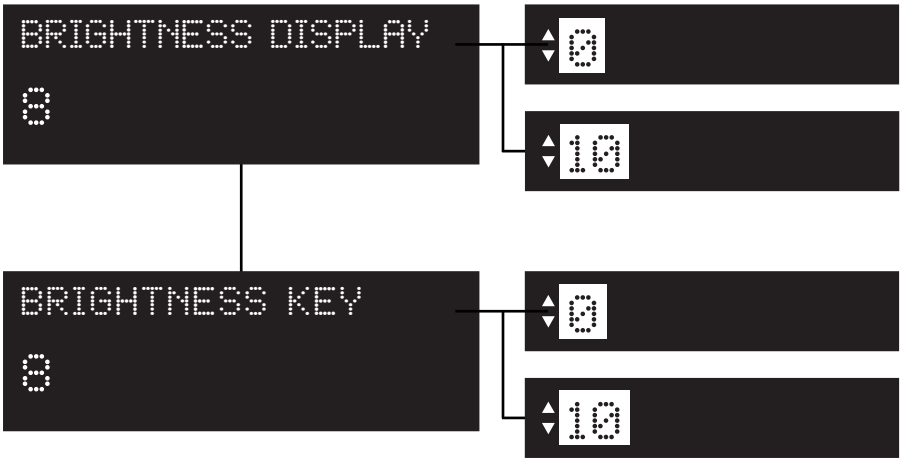


REVERSE:
It allows to turn by 180° the reading of the display. When you chose "**ON**" wait the turn of the display without clicking.

AUTO LOCK:
Locks the keys.
OFF: Auto Lock function in OFF
HOLD: Press any key for 3 seconds to unlock.
PIN: Use your personal lock pin to unlock.

LOCK PIN:
Allows to set your personal lock pin (from 0000 to 9999).

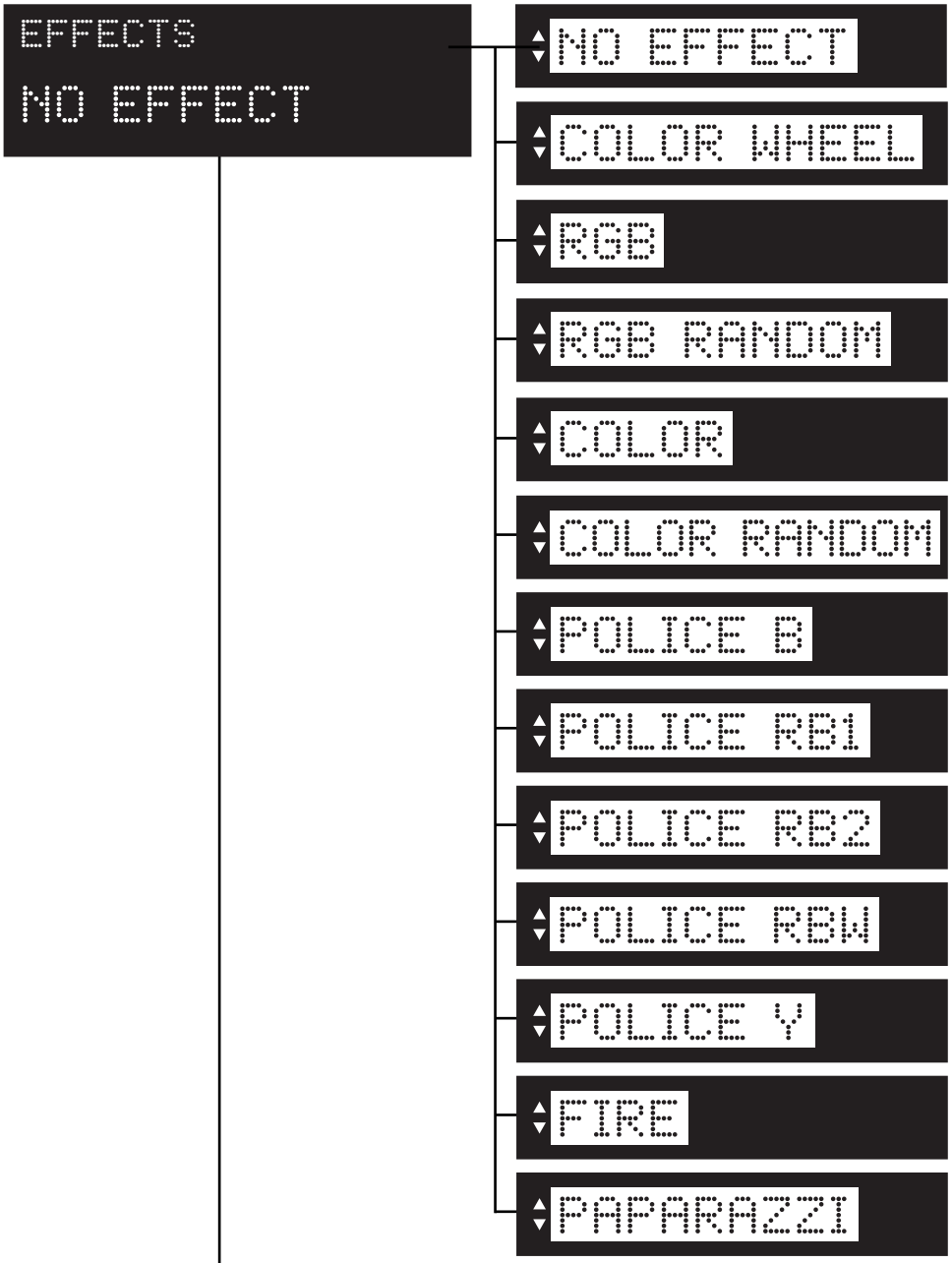
AUTO POWER OFF:
OFF: Auto Power OFF in OFF
ON: Causes the projector display to turn off after 30 seconds of inactivity.
DMX: Causes the projector display to turn off after 30 seconds of inactivity, but the display will turn automatically ON in case of signal loss



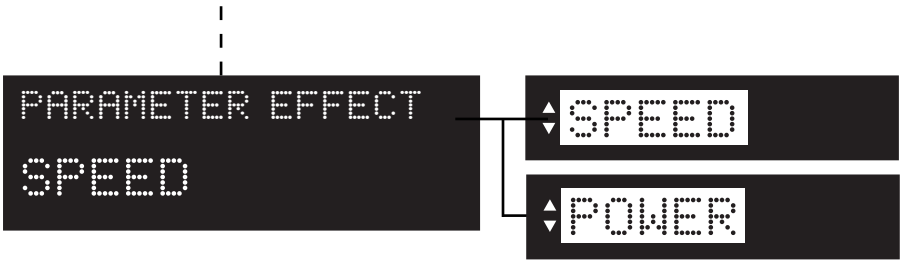
BRIGHTNESS DISPLAY:
Allows to change the brightness of the display (from 0 to 10).

BRIGHTNESS KEY:
Allows to change the brightness of the key (from 0 to 10).

9.6 Effects



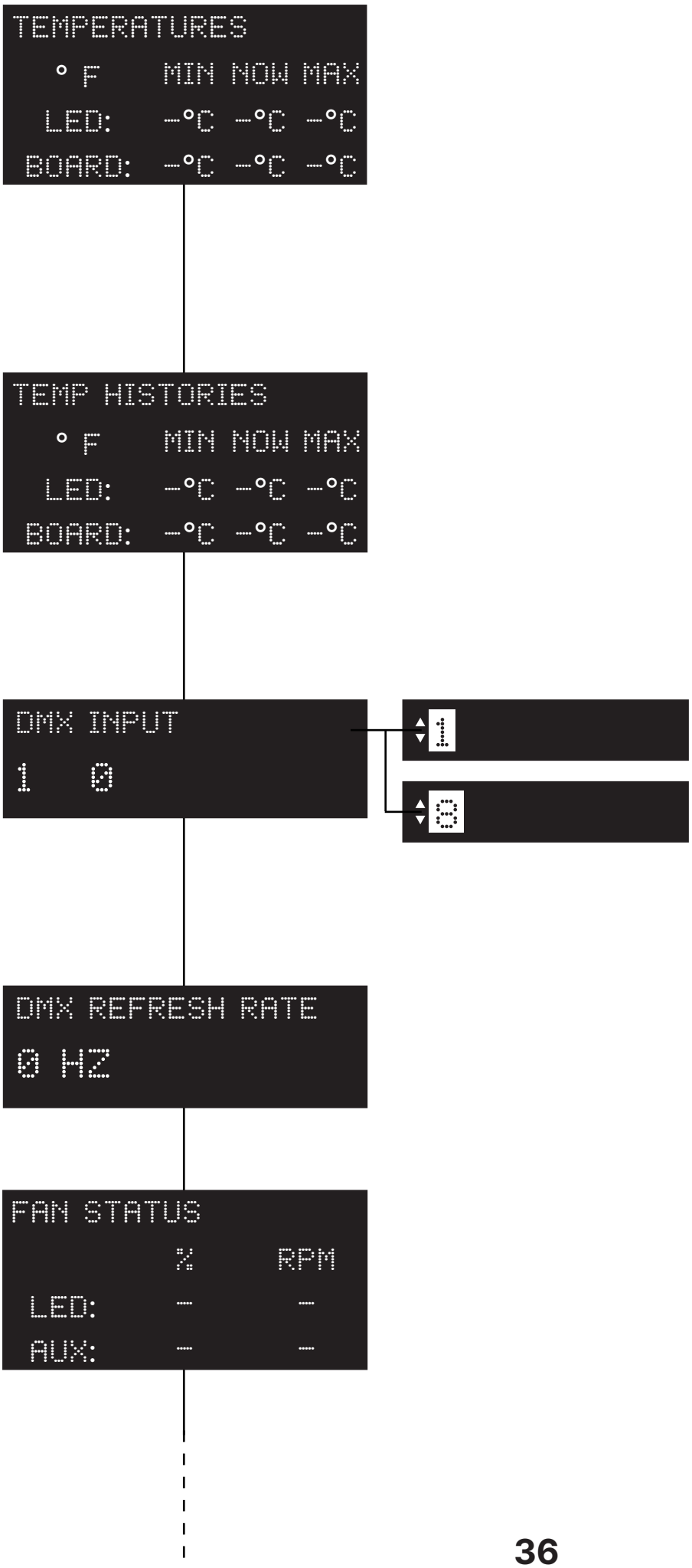
EFFECTS:
It is possible to choose between the following effects:
COLOR WHEEL: replicates the color wheel by applying a fade effect between colors (Red, Yellow, Green, Cyan, Blue, Magenta);
RGB: replicates the RGB colors in rotation following the order Red, Green, Blue;
RGB RANDOM: replicates randomly the RGB colors in rotation
COLOR: replicates the color wheel (Red, Yellow, Green, Cyan, Blue, Magenta);
COLOR RANDOM: replicates randomly the color wheel (Red, Yellow, Green, Cyan, Blue, Magenta);
POLICE B: replicates the police flashing lights (type B);
POLICE RB1: replicates the police flashing lights (type RB1);
POLICE RB2: replicates the police flashing lights (type RB2);
POLICE RBW: replicates the police flashing lights (type RBW);
POLICE Y: replicates the yellow police flashing lights;
FIRE: replicates the effect of fire from minimum (candle type) to maximum (blaze type);
PAPARAZZI: replicates the Paparazzi effect, a random flashing white light.



PARAMETER EFFECT:
It allows to change the parameter of the effect selected.
SPEED: increases the speed of all effects;
POWER: increases the intensity of all effects;
N.B. When you select a parameter effect it works for all effects and not individually.
Here below a chart where you can see which parameter works with the associated effect.

PARAMETER / EFFECT	Speed	Power
Color Wheel	●	/
RGB	●	/
RGB Random	●	/
Color	●	/
Color Random	●	/
Police B	/	/
Police RB1	/	/
Police RB2	/	/
Police RBW	/	/
Police Y	/	/
Fire	●	●
Paparazzi	●	/

9.7 Measures



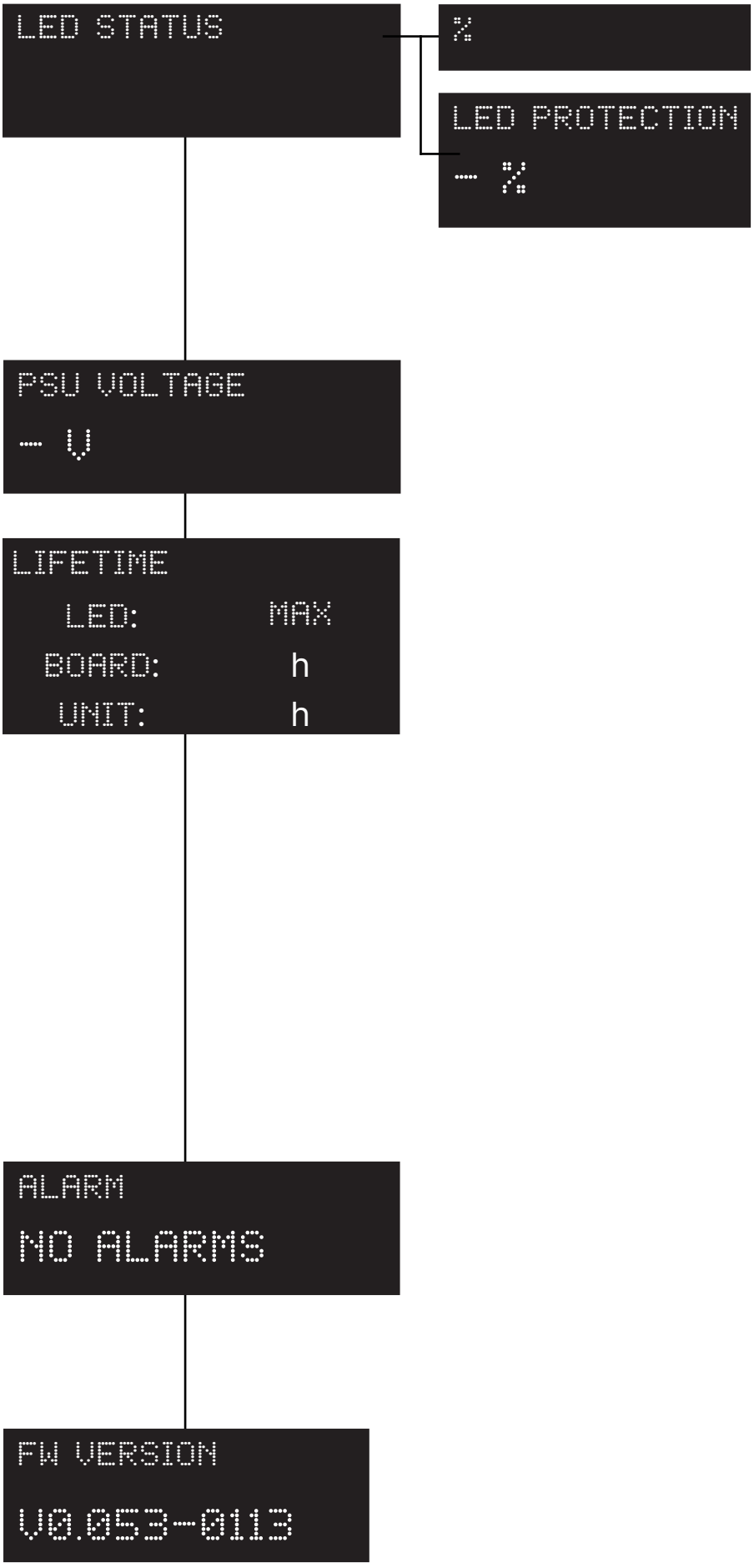
TEMPERATURES:
Shows the current temperature values of the fixture.
LED: shows the LED module temperature.
BOARD: shows the electronic board temperature.

TEMPERATURES HISTORIES:
Shows the history temperature of the fixture.
LED: shows the LED module temperature.
BOARD: shows the electronic board temperature.

DMX INPUT:
Shows the value of the DMX channels received by the fixture on every channel (from 1 to 5) that the fixture occupies on the line.

DMX REFRESH RATE:
Shows the refresh rate of the DMX signal sent by the console.

FAN STATUS:
Shows the percentage fan usage.



LED STATUS:
Shows the percentage value of the LED status.

LED PROTECTION:
Percentage of the maximum power in order to keep the projector in temperature.

PSU VOLTAGE:
Shows the power supply voltage.

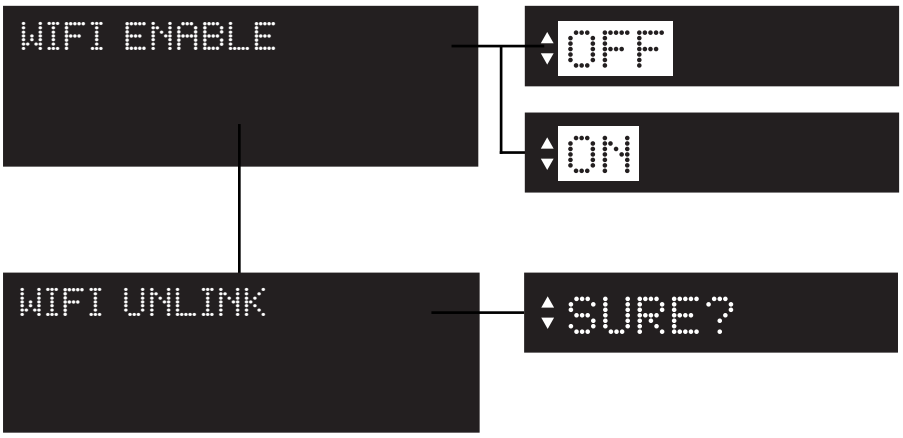
LIFETIME:
Shows the hour counter of the fixture.
LED: shows the overall LED module life.
BOARD: shows the overall LED module life currently installed. **UNIT LIFE:** shows the overall hours of life of the fixture.
Note: this items can be reset in case of LED module replacement.

ALARM:
This menu eventually shows the alarm statuses if there is any (section **ERROR MESSAGES**).

FIRMWARE VERSION:
Shows the firmware version currently installed in the fixture (as you can see in the example).

10. Wi-Fi Menu (OPTIONAL)

10.1 Wi-Fi



WIFI ENABLE:
It allows enable all the Wi-Fi functions

WIFI UNLINK:
This function is used to disconnect the projector from the transmitter.

11. Special Function and Error Messages

11.1 Special functions of the fixture

Storing the DMX signal

To use the fixture without an active DMX console it is possible to store the DMX settings in two ways:

- Through the **PRESET** menu;
- Disconnecting the DMX signal when the fixture is on. When the signal is unconnected the fixtures stores the signal;

Automatic fan standby

To decrease the noise and the power consumption the cooling fan turns off after 40 seconds without emitting light.

11.2 Error messages

If a malfunction occurs, LEDko **EXT FS RGBLA +** has a self-diagnostic system that will show the error message on the display. The following table will explain in detail the most common errors. If, despite of suggested intervention, the problem persists, call the **Coemar** Service Center.

Error code	Description
MEMORY	**Memory Error** Indicates that the projector has lost its memory and saved data
HW MEMORY	**HW Memory Error** Indicates that there is an Hardware Memory Error
DMX ADDR	**DMX Address Error** The projector address is too high and does not allow to receive all the necessary channels. We recall in this connection that some controllers do not generate all the 512 channels.
NTC ERROR	**NTC Error** LED temperature sensor missing or damaged.
SHORT NTC	**Short NTC Error** Error of the LED's sensor circuit.
FAN SPEED	**Fan Speed Error** Auto diagnostic routine found that the Fan may be damaged, contact Coemar assistance for the module replacement. **IMPORTANT:** to ensure the sensor is giving correct readings or that the fan rotates correctly, set the fan to the maximum level.
OVERTEMP	**Over temperature Error** Indicates that the product has reached a too high temperature.

12. Accessories and Spare parts

All the components of **LEDko EXT FullSpectrum RGBLA** are available as spare parts from your **Coemar** dealer or Service. Accurate description of the fixture, model number and type will assist us in providing for your requirements in an efficient and effective manner.

Accessory name	Code
Profile Zoom 10°-25°	BC10029A002
Profile Zoom 14°-35°	BC10029A000
Profile Zoom 30°-60°	BC10029A004
Lens Tube Profile 80°	BC10029A005
Removable four blade framing system with gobo holder (included)	BC10028A000
Frame Holder	BC10029A003
Power Junction Connector (included)	CN72
DMX Signal Junction Connector (included)	CN73
DMX end of line closure cap, indispensable for the last projector of the line (included)	RME34/G
Wrench for gobo rotator (included)	BC016A010

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13. Maintenance

13.1 Firmware update

The firmware of **LEDko EXT FullSpectrum RGBLA** can be updates through the RDM protocol (ANSI E1.20). Contact **Coemar** assistance to receive the software and the device updater.

13.2 Periodic cleaning

Lenses

Even a thin layer of dust can reduce the luminous output and alter the consistency of the beam. Regularly clean all filters and lenses using a soft cotton cloth, dampened with a special lens cleaning solution.

Cleaning of the unit

Use a soft brush or a common vacuum cleaner or a source of compressed air for removing dust. For the cleaning of the housing use a soft cloth and a non-aggressive cleaner. Check that the internal fans and heat exchanger must be perfectly clean.

13.3 Periodic controls

Mechanical components

Check the correct working of the mechanical parts and, if needed, replace them. Make sure the projector is not mechanically damaged. If necessary, replace the worn parts.

Electrical components

Check all electrical connections, in particular for correct grounding and correct attachment of all extractable connectors. Press the connectors if necessary and reposition as before.

13.4 Fuses

LEDko EXT FullSpectrum RGBLA has an automatic fuse that in most cases does not need to be replaced.

14. F.A.Q. and answers

The following list shows common issues that may be simply solved. If issues persist, the unit must be repaired by a qualified personnel or just contact your **Coemar** service.

Question	Possible solution
LEDko EXT FullSpectrum RGBLA does not emit light	**Projector not powered on:** • Make sure the power cable is plugged in or test the input voltage; **Wrong DMX address:** • Check the DMX Address setting and the output signal of the controller;
LEDko EXT FullSpectrum RGBLA is not responding to DMX signal	**DMX signal may not reach LEDko EXT:** • Inspect the cable connection, correct poor connections or inefficient repair or replace damaged cables; • Check DMX address of the unit;

User notes

Information on disposal of the equipment

The equipment at the end of its useful life must be disposed of at an appropriate recycling center for waste electrical and electronic equipment. The treatment and disposal of environmentally friendly, helps prevent potential negative environmental and health and promote the reuse and / or recycling of materials making up the equipment. Illegal disposal by the user includes the application of administrative sanctions provided by law.

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