REFLECTION LEDko™ EXT

Engine FullSpectrum 6 Studio

coemar
LIGHT EMOTION

REFLECTION LEDko™ EXT

Engine FullSpectrum 6 Studio

Serial Number:

....

Purchase date:

....

Dealer:

....

Address:

....

Suburb:

....

Country:

....

Phone / Fax:

....

Please note in the space provided above the relative service information of the model and the retailer from whom you purchased your **LEDko EXT**: this information will assist us in providing spare parts, repairs or in answering any technical enquiries with the utmost speed and accuracy.

WARNING: the security of the fixture is granted only if these instructions are strictly followed; therefore it is absolutely necessary to keep this manual.

User Manual version 1.5
Edition 15 September 2022

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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.

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
1 Instruction manual

1.2 Transportation

The **LEDko EXT** 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: 0,5m.
3. Minimum distance from the closet illuminable surface: 0,5m.
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** 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 35°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 36 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
The projector meets all fundamental applicable EC requirements.

3. Product specifications

3.1 Technical characteristics

Power supply	90-230 V, auto-sensing, 50/60 Hz
Maximum current	1.19 A at 230 V, 2.38 A at 115 V
Power factor	Cosφ = 0.93
Power consumption	255 W
Color temperature	RGBCLA color mixing and all whites from 2.700 to 20.000 K
Weight	9.5 Kg (20.94 lbs)
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
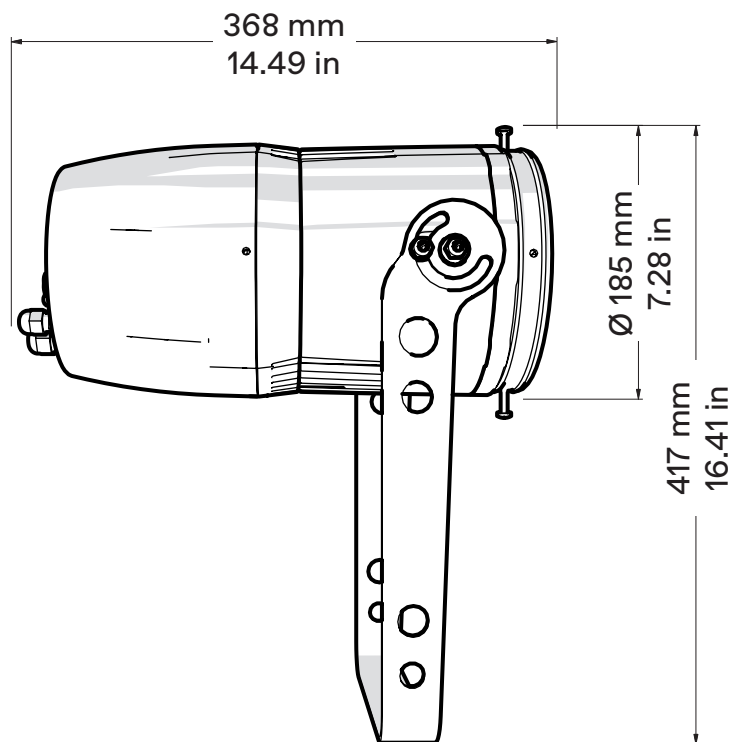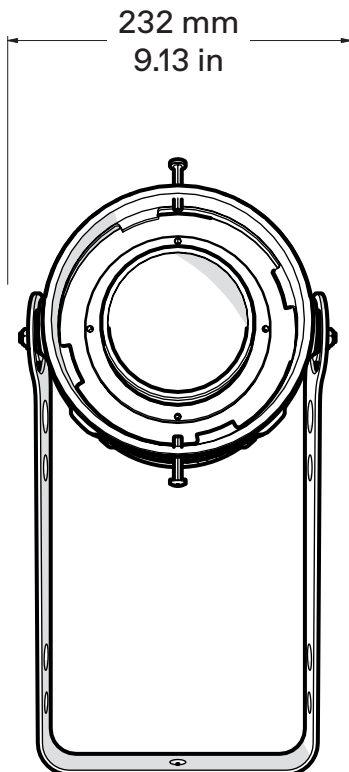
3.3 Unit's main components
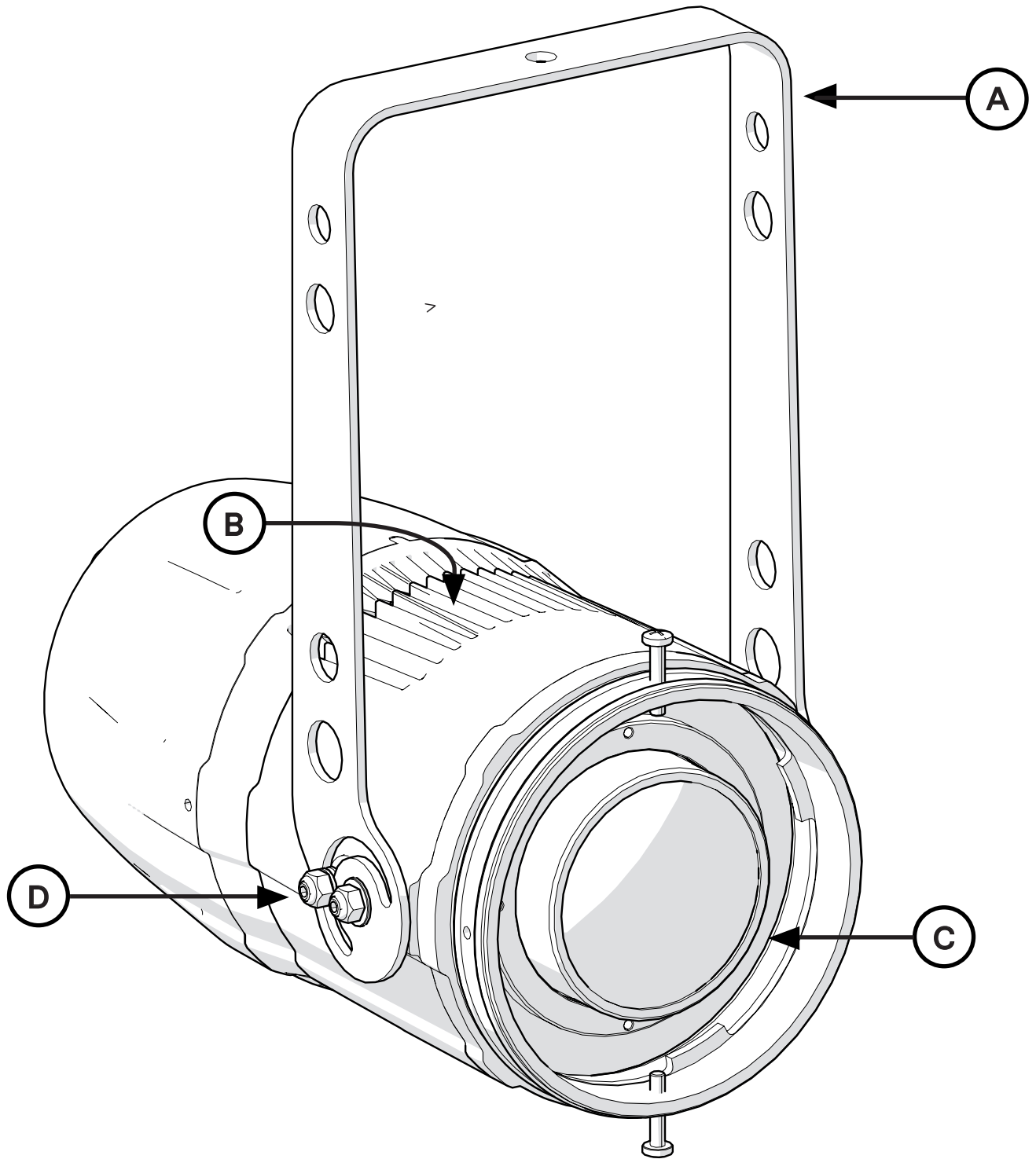
Components description	
A	Yoke with mounting holes
B	Cooling unit
C	Optical holder tube
D	Locking screw for yoke

3.4 Back panel description

Display

Menu button

Enter button

DMX In

Plus button

Minus button

DMX Out

Power In
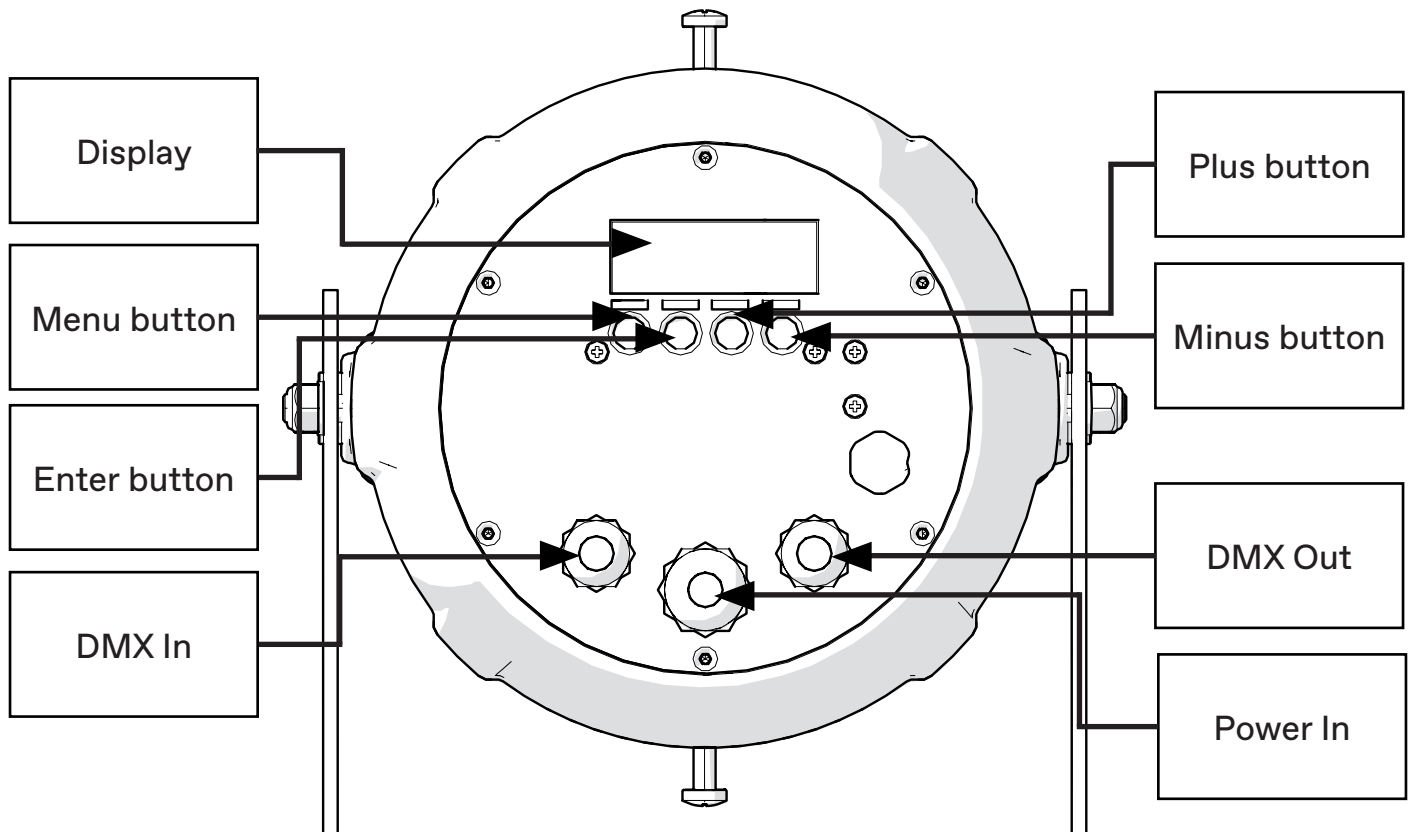
4. Installation

4.1 Mechanical installation

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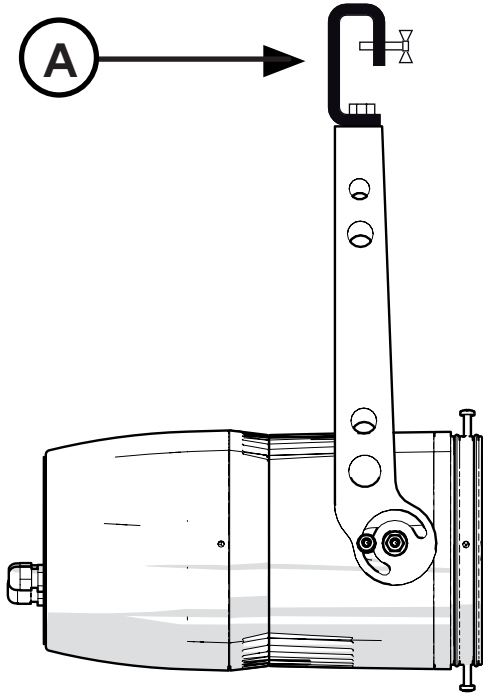
> **Warning!!**
> Always ensure that your support structure and fixing (bolts, clamps, etc...) are rated to support the weight of the fixture.

4.2 Safety chain

When hanging **LEDko EXT** 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).
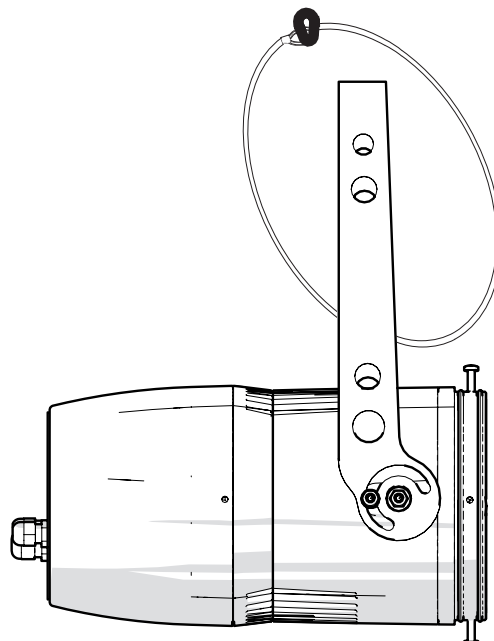
4.3 Adjusting unit's tilt

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.
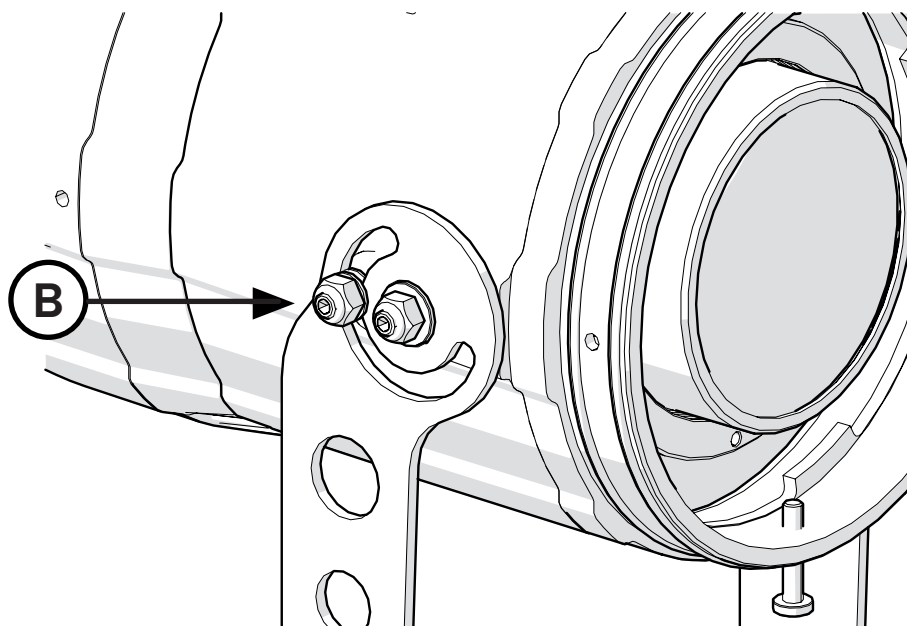
4.4 How to put on an optic

To put on an optic, be sure that the two screw on the both side are unscrewed, now as you can see below "**C**", put on the optic into the appropriate slots "**D**". Now once the optic is well mounted screw again the screws
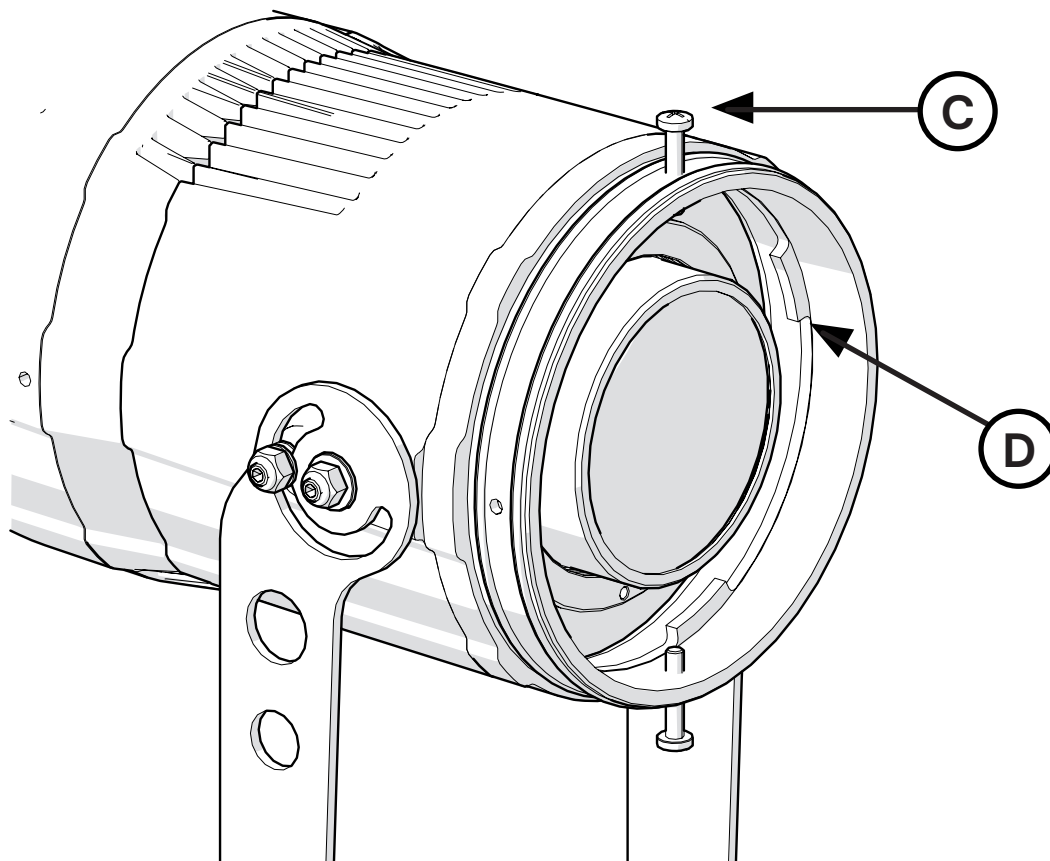
5. Powering up

5.1 Operating voltage and frequency

The unit may operates at voltages ranges from 90 to 230VaC at a frequency of 50 or 60 Hz. It is not needed to effect any setup procedures: **LEDko EXT** 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 provided 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 300/500V, tested to 2 KV, operating temperature -40°C + 180°C, Coemar cod. CV5311).

Connection to mains power

LEDko EXT is equipped with two power connectors, one as input and one as output, which can be used to feed up to 8 (at 230 VAC) or 4 (90 VAC) fixtures.

The max absorption of **LEDko EXT** is reported in the following table:
- 230 VaC 1.19 A constant during normal exercise.
- 115 VaC 2.38 A constant during normal exercise.
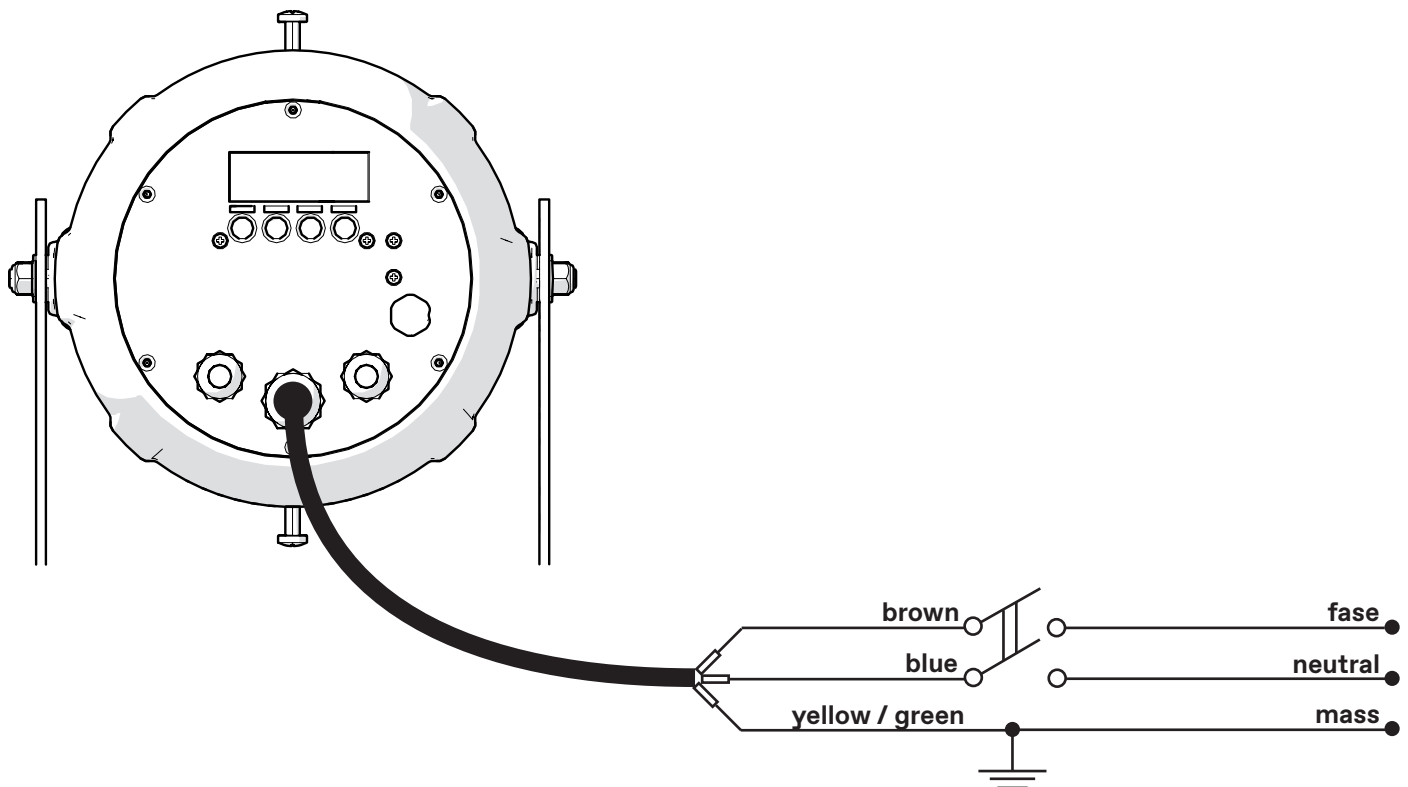
brown — fase
blue — neutral
yellow / green — mass

6. Control signal connections

6.1 Control signal connection by XLR5 plugs

The digital control signal is transmitted to the projector via a two pole cable screened as per International standards for the transmission of DMX 512 data. The connection must be serial, using connectors XL5 male and female located on the back of **LEDko EXT** labelled DMX512 IN e OUT (see diagram).

Connectors equipped on LEDko EXT are IP rated, which ensures protection against water and dust. In order to keep this rating they must be connected exclusively to other IP rated connectors.
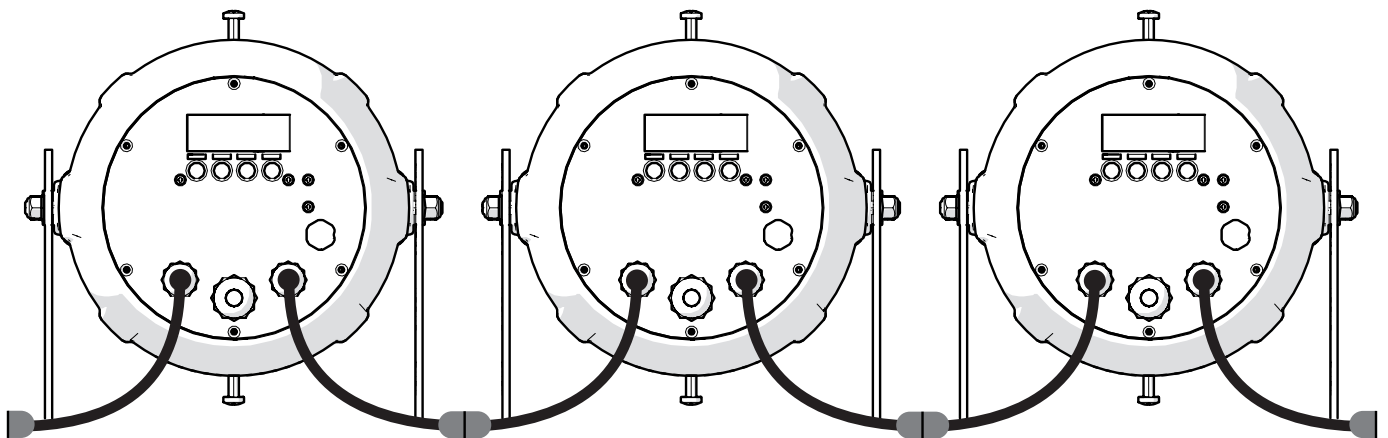
7. Turning on the projector

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 **16 / 7 / 1**, **Studio mode**, **RGB mode**, **fine RGB mode** or **Sunrise mode** 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 16 channels a projector thus addressed will respond to commands of channel 1 to 16 from your DMX 512 controller. A second unit must be addressed as A017, a third one as A033 and so on. The operation must be carried out on every LEDko FullSpectrum 6 HD 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

Warning!!
If you alter the DMX address with no DMX signal connected, the digits on the display panel will continue to flash even after you have pressed ENTER button to confirm the address.

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8. DMX chart

8.1 DMX Chart 16, 7, 1 channels

channel 16	channel 7	channel 1	function	type of control	effect	decimal			percentage		
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	-	cyan	proportional	proportional control of the color percentage from 0 % to 100 %	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 effect	step	no effect	0	-	9	0%	-	4%
				proportional	variable speed strobing effect, from slow to fast	10	-	57	4%	-	22%
				step	stop strobe	58	-	59	23%	-	23%
				proportional	sequenced pulse effect, slow closing, fast opening (variable speed pulsing, from slow to fast)	60	-	108	24%	-	42%
				step	stop strobe	109	-	110	43%	-	43%
				proportional	sequenced pulse effect, fast closing, slow opening (variable speed pulsing, from slow to fast)	111	-	159	44%	-	62%
				step	stop strobe	160	-	161	63%	-	63%
				proportional	random strobe effect with variable speed from slow to fast	162	-	207	64%	-	81%
				step	stop strobe	208	-	209	82%	-	82%
				proportional	random strobe effect with variable speed from slow to fast	210	-	255	82%	-	100%
9	-	-	dimmer fine	proportional	fine dimmer control 16 bit	0	-	255	0%	-	100%
10	-	-	special functions	step	park	0	-	9	0%	-	4%
					no effect	10	-	84	4%	-	33%
				step	fan at SILENT mode	85	-	96	33%	-	38%
					fan at STUDIO mode	97	-	108	38%	-	42%
					fan at AUTO mode	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%
					no effect	200	-	255	78%	-	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	-	15	4%	-	6%
				proportional	proportional value from 2.700 K to 3.200 K	16	-	30	6%	-	12%
				step	3.200 K	31	-	45	12%	-	18%
				proportional	proportional value from 3.200 K to 4.000 K	46	-	60	18%	-	24%
				step	4.000 K	61	-	75	24%	-	29%
				proportional	proportional value from 4.000 K to 5.000 K	76	-	90	30%	-	35%
				step	5.000 K	91	-	105	36%	-	41%
				proportional	proportional value from 5.000 K to 5.600 K	106	-	120	42%	-	47%
				step	5.600 K	121	-	135	47%	-	53%
				proportional	proportional value from 5.600 K to 7.000 K	136	-	150	53%	-	59%
				step	7.000 K	151	-	165	59%	-	65%
				proportional	proportional value from 7.000 K to 8.000 K	166	-	180	65%	-	71%
				step	8.000 K	181	-	195	71%	-	76%
				proportional	proportional value from 8.000 K to 9.000 K	196	-	210	77%	-	82%
				step	9.000 K	211	-	225	83%	-	88%
				proportional	proportional value from 9.000 K to 10.000 K	226	-	240	89%	-	94%
				step	10.000 K	241	-	255	95%	-	100%

15[3]	-	-	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 magenta color	129	-	254	51%	-	99%
				step	no effect	255			100%		
16[4]	-	-	saturation	proportional	the white tone fades to the tone built with the RGBCLA channels	0	-	255	0%	-	100%

Note 1: channels involving 11 - 12 - 13 macro colors can also be obtained by mixing channels 2 - 3 - 4 - 5 - 6 - 7.

Note 2: the one channel function mode can be selected through the "DMX SETTINGS" menu.

Note 3: the rest position of the 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 4: 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 - 5 - 6 - 7.

Projector: LEDko EXT	Chart name: DMX512 function	software version: 0.61
Edition: 1		

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	2.700 K	0	-	15	0%	-	6%
		proportional	proportional value from 2.700 K to 3.200 K	16	-	30	6%	-	12%
		step	3.200 K	31	-	45	12%	-	18%
		proportional	proportional value from 3.200 K to 4.000 K	46	-	60	18%	-	24%
		step	4.000 K	61	-	75	24%	-	29%
		proportional	proportional value from 4.000 K to 5.000 K	76	-	90	30%	-	35%
		step	5.000 K	91	-	105	36%	-	41%
		proportional	proportional value from 5.000 K to 5.600 K	106	-	120	53%	-	59%
		step	5.600 K	121	-	135	47%	-	53%
		proportional	proportional value from 5.600 K to 7.000 K	136	-	150	53%	-	59%
		step	7.000 K	151	-	165	59%	-	65%
		proportional	proportional value from 7.000 K to 8.000 K	166	-	180	65%	-	71%
		step	8.000 K	181	-	195	71%	-	76%
		proportional	proportional value from 8.000 K to 9.000 K	196	-	210	77%	-	82%
		step	9.000 K	211	-	225	83%	-	88%
		proportional	proportional value from 9.000 K to 10.000 K	226	-	240	89%	-	94%
		step	10.000 K	241	-	255	95%	-	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 magenta color	129	-	254	51%	-	99%
		step	no effect	255			100%		
4	saturation	proportional	the white tone fades to the tone built with the HUE channel	0	-	255	0%	-	100%
5[2]	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	park	0	-	9	0%	-	4%
			no effect	10	-	84	4%	-	33%
			fan at SILENT mode	85	-	96	33%	-	38%
			fan at STUDIO mode	97	-	108	38%	-	42%
			fan at AUTO mode	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%
			no effect	200	-	255	78%	-	100%

Note 1: the rest position of the 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 2: increasing the value of the saturation DMX channel (channel 4) the white light will fade to the color selected with the HUE channel (channel 5)

Projector: LEDko EXT	Chart name: DMX512 function	software version: 0.61
Edition: 1		

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%
			2.700 K	10	-	15	4%	-	6%
		proportional	proportional value from 2.700 K to 3.200 K	16	-	30	6%	-	12%
		step	3.200 K	31	-	45	12%	-	18%
		proportional	proportional value from 3.200 K to 4.000 K	46	-	60	18%	-	24%
		step	4.000 K	61	-	75	24%	-	29%
		proportional	proportional value from 4.000 K to 5.000 K	76	-	90	30%	-	35%
		step	5.000 K	91	-	105	36%	-	41%
		proportional	proportional value from 5.000 K to 5.600 K	106	-	120	42%	-	47%
		step	5.600 K	121	-	135	47%	-	53%
		proportional	proportional value from 5.600 K to 7.000 K	136	-	150	53%	-	59%
		step	7.000 K	151	-	165	59%	-	65%
		proportional	proportional value from 7.000 K to 8.000 K	166	-	180	65%	-	71%
		step	8.000 K	181	-	195	71%	-	76%
		proportional	proportional value from 8.000 K to 9.000 K	196	-	210	77%	-	82%
		step	9.000 K	211	-	225	83%	-	88%
		proportional	proportional value from 9.000 K to 10.000 K	226	-	240	89%	-	94%
		step	10.000 K	241	-	255	95%	-	100%
7[1]	saturation	proportional	the white tone fades to the tone built with the RGB channels	0	-	255	0%	-	100%
8	strobe effect	step	no effect	0	-	9	0%	-	4%
		proportional	variable speed strobing effect, from slow to fast	10	-	57	4%	-	22%
		step	stop strobe	58	-	59	23%	-	23%
		proportional	sequenced pulse effect, slow closing, fast opening (variable speed pulsing, from slow to fast)	60	-	108	24%	-	42%
		step	stop strobe	109	-	110	43%	-	43%
		proportional	sequenced pulse effect, fast closing, slow opening (variable speed pulsing, from slow to fast)	111	-	159	44%	-	62%
		step	stop strobe	160	-	161	63%	-	63%
		proportional	random strobe effect with variable speed from slow to fast	162	-	207	64%	-	81%
		step	stop strobe	208	-	209	82%	-	82%
		proportional	random strobe effect with variable speed from slow to fast	210	-	255	82%	-	100%

9	special functions	step	park	0	-	9	0%	-	4%
			no effect	10	-	84	4%	-	33%
			fan at SILENT mode	85	-	96	33%	-	38%
			fan at STUDIO mode	97	-	108	38%	-	42%
			fan at AUTO mode	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%
			no effect	200	-	255	78%	-	100%

Note 1: increasing the value of the saturation DMX channel the white tone (channel 6) will fade to the color selected by the channel 3, 4 or 5

| Projector: LEDko EXT | Chart name: DMX512 function | software version: 0.61 |
| Edition: 1 | | |

8.4 DMX Chart fine 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	step	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	red fine	step	fine red control 16 bit	0	-	255	0%	-	100%
5	green	proportional	proportional control of the color percentage from 0 % to 100 %	0	-	255	0%	-	100%
6	green fine	step	fine green control 16 bit	0	-	255	0%	-	100%
7	blue	proportional	proportional control of the color percentage from 0 % to 100 %	0	-	255	0%	-	100%
8	blue fine	step	fine blue control 16 bit	0	-	255	0%	-	100%
9	white tone	step	no effect	0	-	9	0%	-	4%
			2.700 K	10	-	15	4%	-	6%
		proportional	proportional value from 2.700 K to 3.200 K	16	-	30	6%	-	12%
		step	3.200 K	31	-	45	12%	-	18%
		proportional	proportional value from 3.200 K to 4.000 K	46	-	60	18%	-	24%
		step	4.000 K	61	-	75	24%	-	29%
		proportional	proportional value from 4.000 K to 5.000 K	76	-	90	30%	-	35%
		step	5.000 K	91	-	105	36%	-	41%
		proportional	proportional value from 5.000 K to 5.600 K	106	-	120	42%	-	47%
		step	5.600 K	121	-	135	47%	-	53%
		proportional	proportional value from 5.600 K to 7.000 K	136	-	150	53%	-	59%
		step	7.000 K	151	-	165	59%	-	65%
		proportional	proportional value from 7.000 K to 8.000 K	166	-	180	65%	-	71%
		step	8.000 K	181	-	195	71%	-	76%
		proportional	proportional value from 8.000 K to 9.000 K	196	-	210	77%	-	82%
		step	9.000 K	211	-	225	83%	-	88%
		proportional	proportional value from 9.000 K to 10.000 K	226	-	240	89%	-	94%
		step	10.000 K	241	-	255	95%	-	100%
10[1]	saturation	proportional	the white tone fades to the tone built with the RGB channels	0	-	255	0%	-	100%
11	strobe	step	no effect	0	-	9	0%	-	4%
		proportional	variable speed strobing effect, from slow to fast	10	-	57	4%	-	22%
		step	stop strobe	58	-	59	23%	-	23%
		proportional	sequenced pulse effect, slow closing, fast opening (variable speed pulsing, from slow to fast)	60	-	108	24%	-	42%
		step	stop strobe	109	-	110	43%	-	43%
		proportional	sequenced pulse effect, fast closing, slow opening (variable speed pulsing, from slow to fast)	111	-	159	44%	-	62%
		step	stop strobe	160	-	161	63%	-	63%
		proportional	random strobe effect with variable speed from slow to fast	162	-	207	64%	-	81%
		step	stop strobe	208	-	209	82%	-	82%
		proportional	random strobe effect with variable speed from slow to fast	210	-	255	82%	-	100%

12	special functions	step	park	0	-	9	0%	-	4%
			no effect	10	-	84	4%	-	33%
			fan at SILENT mode	85	-	96	33%	-	38%
			fan at STUDIO mode	97	-	108	38%	-	42%
			fan at AUTO mode	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%
			no effect	200	-	255	78%	-	100%

Note 1: increasing the value of the saturation DMX channel the white tone (channel 6) will fade to the color selected by the channel 3, 4 or 5

Projector: LEDko EXT Edition: 1	Chart name: DMX512 function	software version: 0.61

8.5 DMX Chart SUNRISE 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	proportional cct	proportional	2.700 K		0			0%	
		proportional	proportional value from 2.700 K to 4000 K	1	-	44	0%	-	17%
		proportional	4.000 K		45			18%	
		proportional	proportional value from 4.000 to 5.000 K	46	-	79	18%	-	31%
		proportional	5.000K		80			31%	
		proportional	proportional value from 5.000 to 5.600 K	81	-	100	32%	-	39%
		proportional	5.600K		101			40%	
		proportional	proportional value from 5.600 K to 10.000 K	102	-	254	40%	-	100%
		proportional	10.000 K		255			100%	
4	step cct	step	no effect	0	-	9	0%	-	4%
		step	2.700 K	10	-	36	4%	-	14%
		step	3.200 K	37	-	63	15%	-	25%
		step	4.000 K	64	-	90	25%	-	35%
		step	5.000 K	91	-	117	36%	-	46%
		step	5.600 K	118	-	144	46%	-	56%
		step	7.000 K	145	-	171	57%	-	67%
		step	8.000 K	172	-	198	67%	-	78%
		step	9.000 K	199	-	225	78%	-	88%
		step	10.000 K	226	-	255	89%	-	100%
5	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 magenta color	129	-	254	51%	-	99%
		step	no effect		255			100%	
6	special functions		park	0	-	9	0%	-	4%
		step	no effect	10	-	84	4%	-	33%
			fan at SILENT mode	85	-	96	33%	-	38%
			fan at STUDIO mode	97	-	108	38%	-	42%
			fan at AUTO mode	109	-	120	43%	-	47%
		proportional	fan speed control	121	-	133	47%	-	52%
			enables the automatic display blackout	134	-	185	53%	-	73%
		step	disables the automatic display blackout	186	-	199	73%	-	78%
			no effect	200	-	255	78%	-	100%

Note 1: If channels 3 and 4 are used simultaneously, channel 4 prevails.

Projector: LEDko EXT Edition: 1	Chart name: DMX512 function	software version: 0.61

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,** 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** 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

`A001` `16 CH` `AUTO`

This will be the first screen that will appear on the display once the projector is turned on. To change the DMX address press the "+" button and chose the DMX address desired.
N.B. If the projector is not connected to the DMX signal, A001 will blink intermittently

By pressing the "**MENU**" button you can enter the **LEDko EXT**'s main menu.
N.B. Instead of use the "+", "-" or "ENTER" buttons it is possible to use the **DIMMER knob** by rotating it. Rotate the **DIMMER knob** in clockwise sense to replicate the "+" button, in counter-clockwise sense to replicate the "-" button or push it to replicate the "**ENTER**" button.
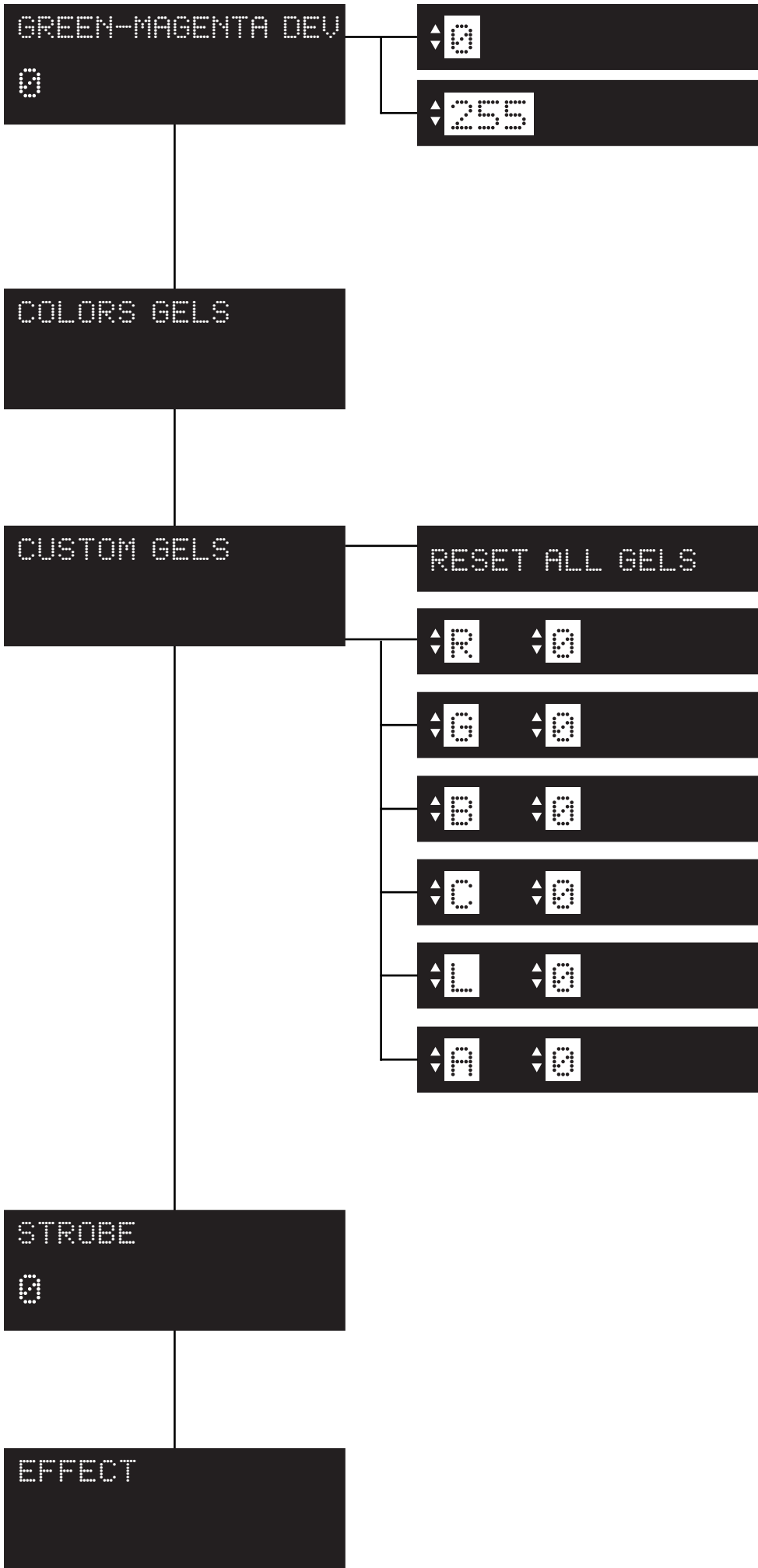
`INTENSITY`
`80d`

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

`CCT`
`2700 K`

`2700 K`
`3000 K`
`3200 K`
`3500 K`
`4000 K`
`4500 K`
`5000 K`
`5600 K`
`6000 K`
`6500 K`
`20000 K`

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
0
```

```
♦ 0
```

```
♦ 255
```

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

```
COLORS GELS
```

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

```
CUSTOM GELS
```

```
RESET ALL GELS
```

```
♦ R    ♦ 0
```

```
♦ G    ♦ 0
```

```
♦ B    ♦ 0
```

```
♦ C    ♦ 0
```

```
♦ L    ♦ 0
```

```
♦ A    ♦ 0
```

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
0
```

STROBE:
Manually sets the strobe DMX channel.

```
EFFECT
```

EFFECTS:
Effects settings (section **9.6 EFFECTS**).

```
SETTINGS
```

```
MEASURES
```
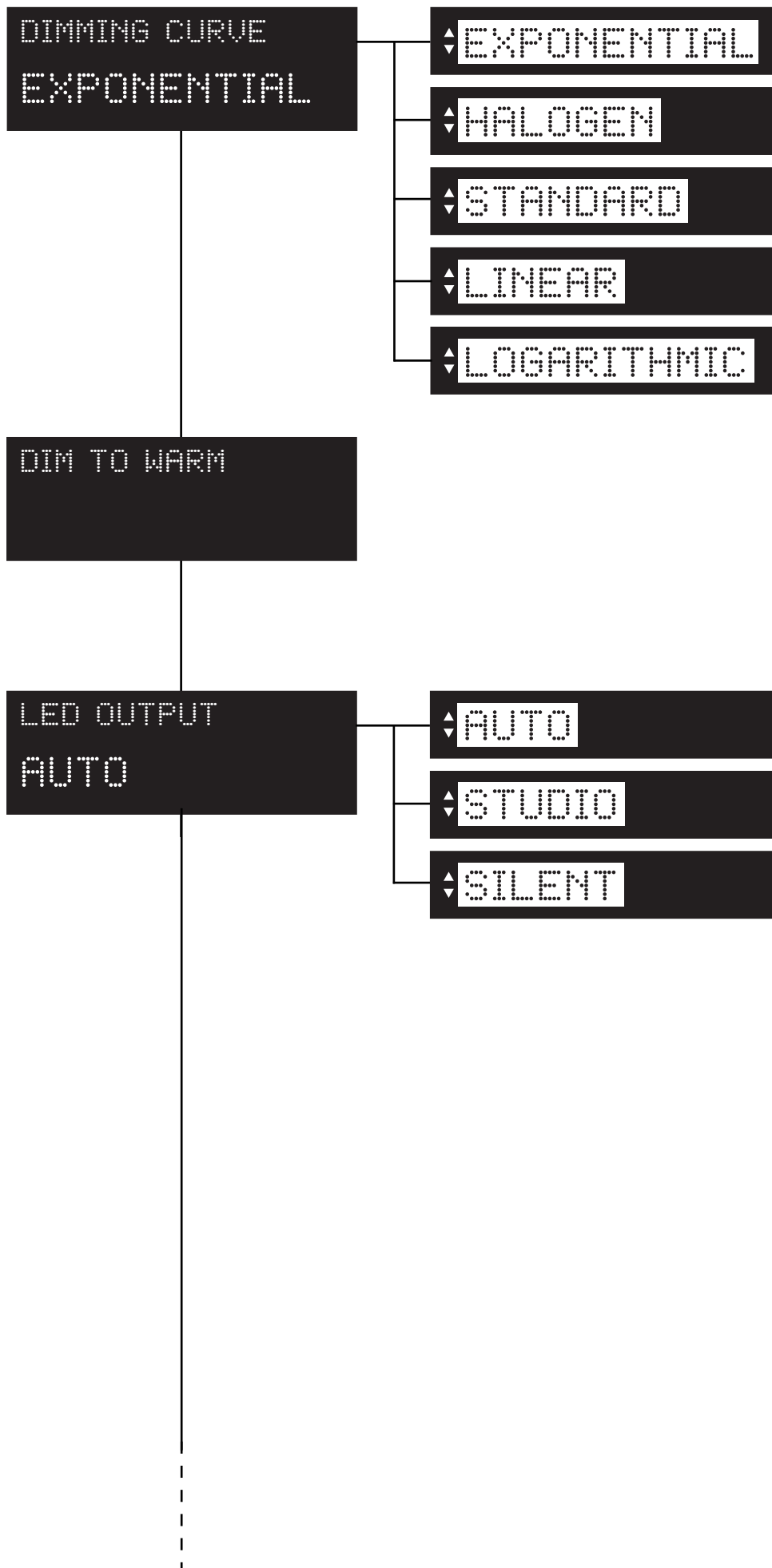
```
FACTORY RESET
```           ```
SURE?
```
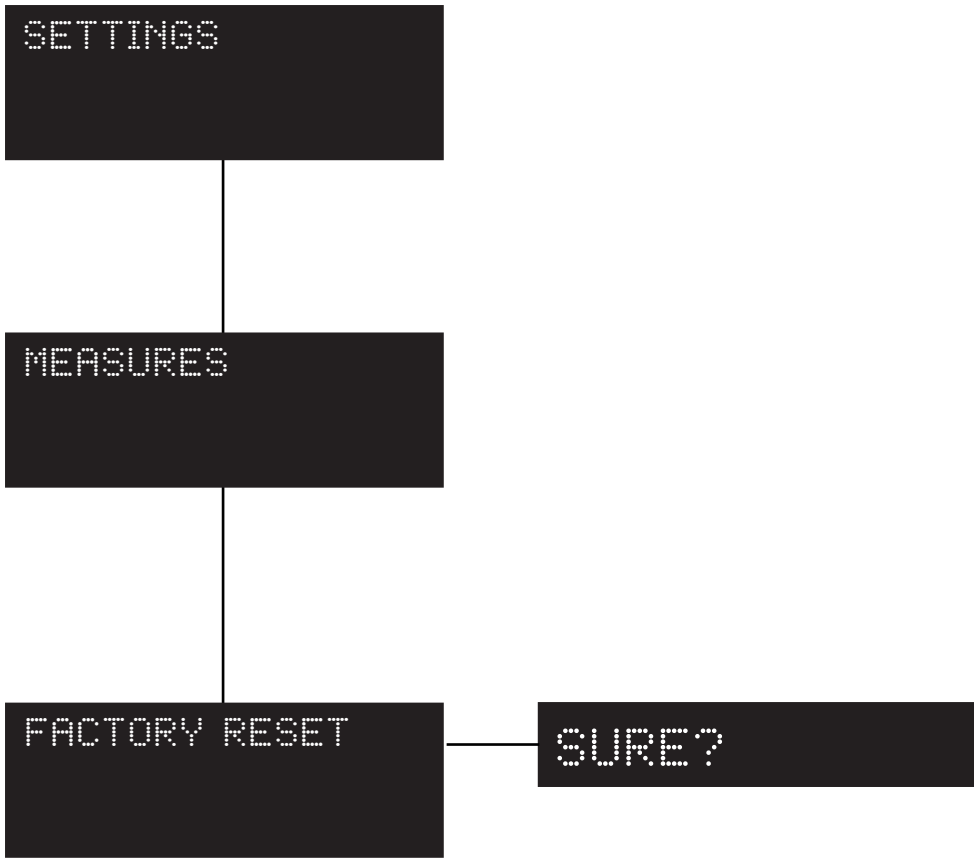
**SETTINGS:**
Manually sets various settings of the projector (section **9.4 SETTINGS**).

**MEASURES:**
Check all the measures and product status (section **9.7 MEASURES**).

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

## 9.4 Settings

```
DIMMING CURVE
EXPONENTIAL
```

```
⬍EXPONENTIAL
```
```
⬍HALOGEN
```
```
⬍STANDARD
```
```
⬍LINEAR
```
```
⬍LOGARITHMIC
```

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

```
DIM TO WARM
```

DIM TO WARM:
Inserts a softening of the dimmer dynamics and red shift. It works only for CCT 3.000 K and 3.200 K and when the halo curve is active.

```
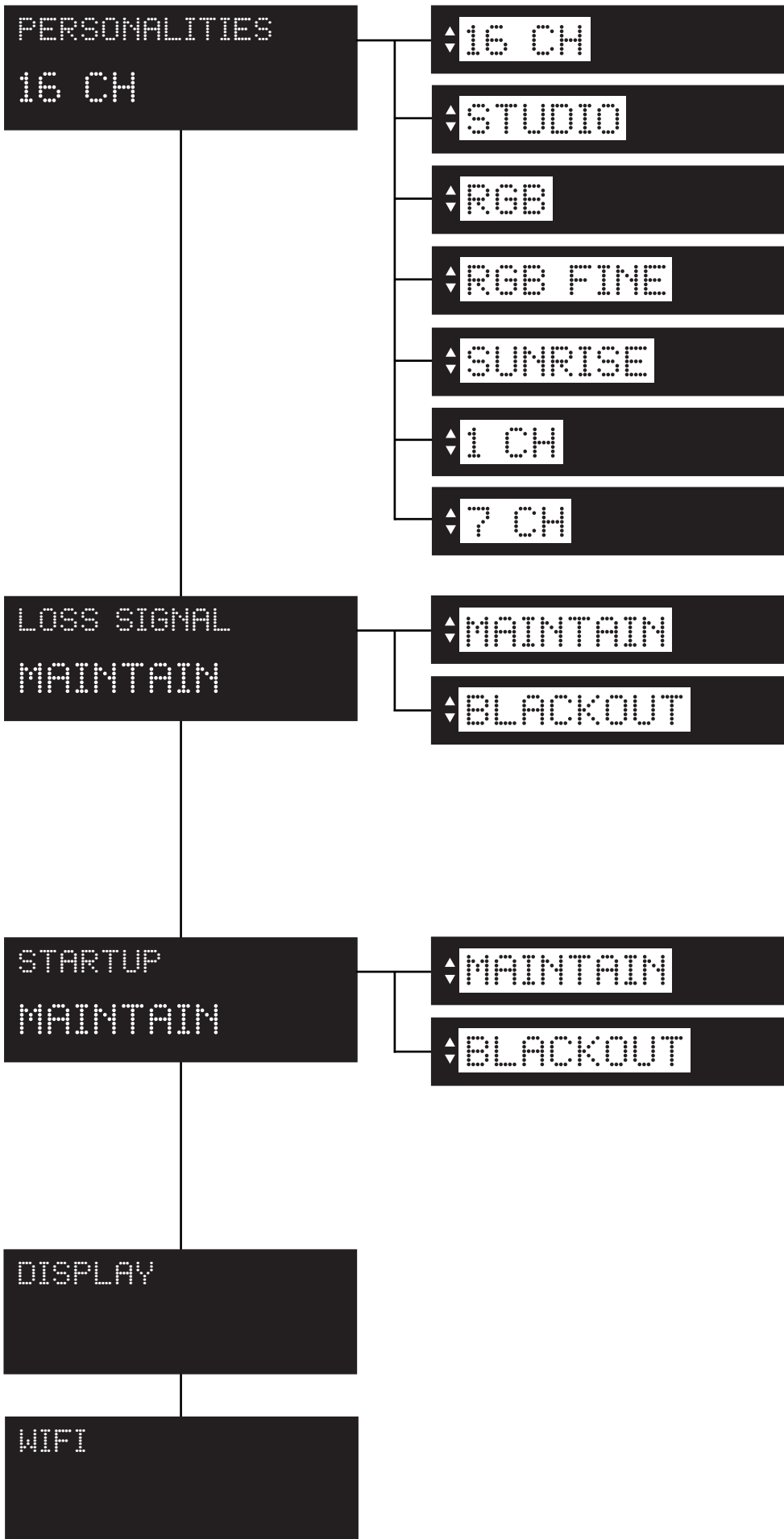LED OUTPUT
AUTO
```

```
⬍AUTO
```
```
⬍STUDIO
```
```
⬍SILENT
```

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.

28

PERSONALITIES

```
PERSONALITIES
16 CH
```

```
▲16 CH
▼
```

```
▲STUDIO
▼
```

```
▲RGB
▼
```

```
▲RGB FINE
▼
```

```
▲SUNRISE
▼
```

```
▲1 CH
▼
```

```
▲7 CH
▼
```

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

```
LOSS SIGNAL
MAINTAIN
```

```
▲MAINTAIN
▼
```

```
▲BLACKOUT
▼
```

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

```
STARTUP
MAINTAIN
```

```
▲MAINTAIN
▼
```

```
▲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

```
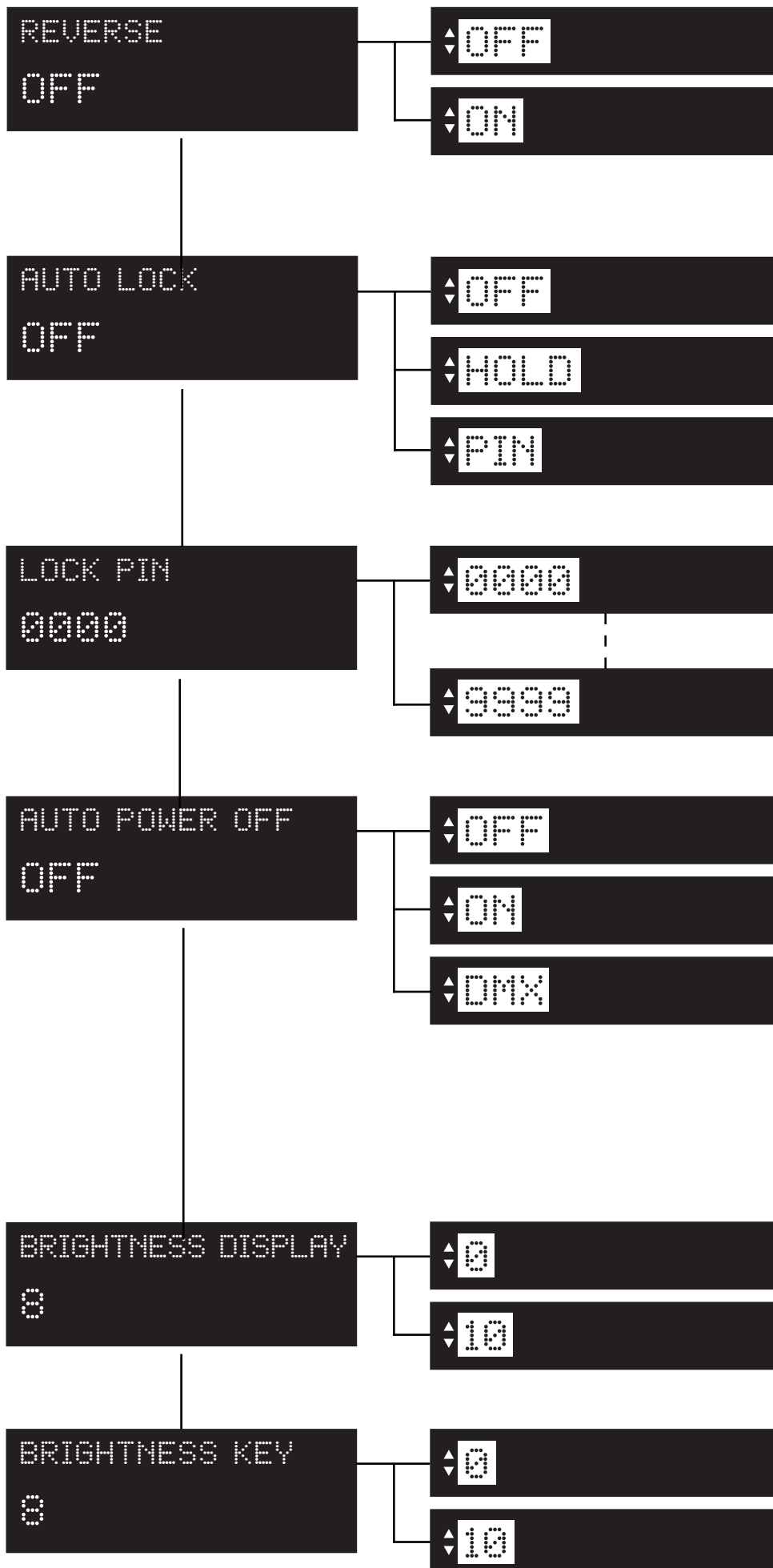DISPLAY
```

DISPLAY:
Display settings (section **9.5 DISPLAY**).

WIFI

```
WIFI
```

WIFI (OPTIONAL):
WiFi settings (section **10 WIFI**).

9.5 Display

REVERSE OFF	‡ OFF ‡ ON

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 OFF	‡ OFF ‡ HOLD ‡ PIN

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 0000	‡ 0000 ‡ 9999

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

AUTO POWER OFF OFF	‡ OFF ‡ ON ‡ DMX

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 8	‡ 0 ‡ 10

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

BRIGHTNESS KEY 8	‡ 0 ‡ 10

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

9.6 Effects

```
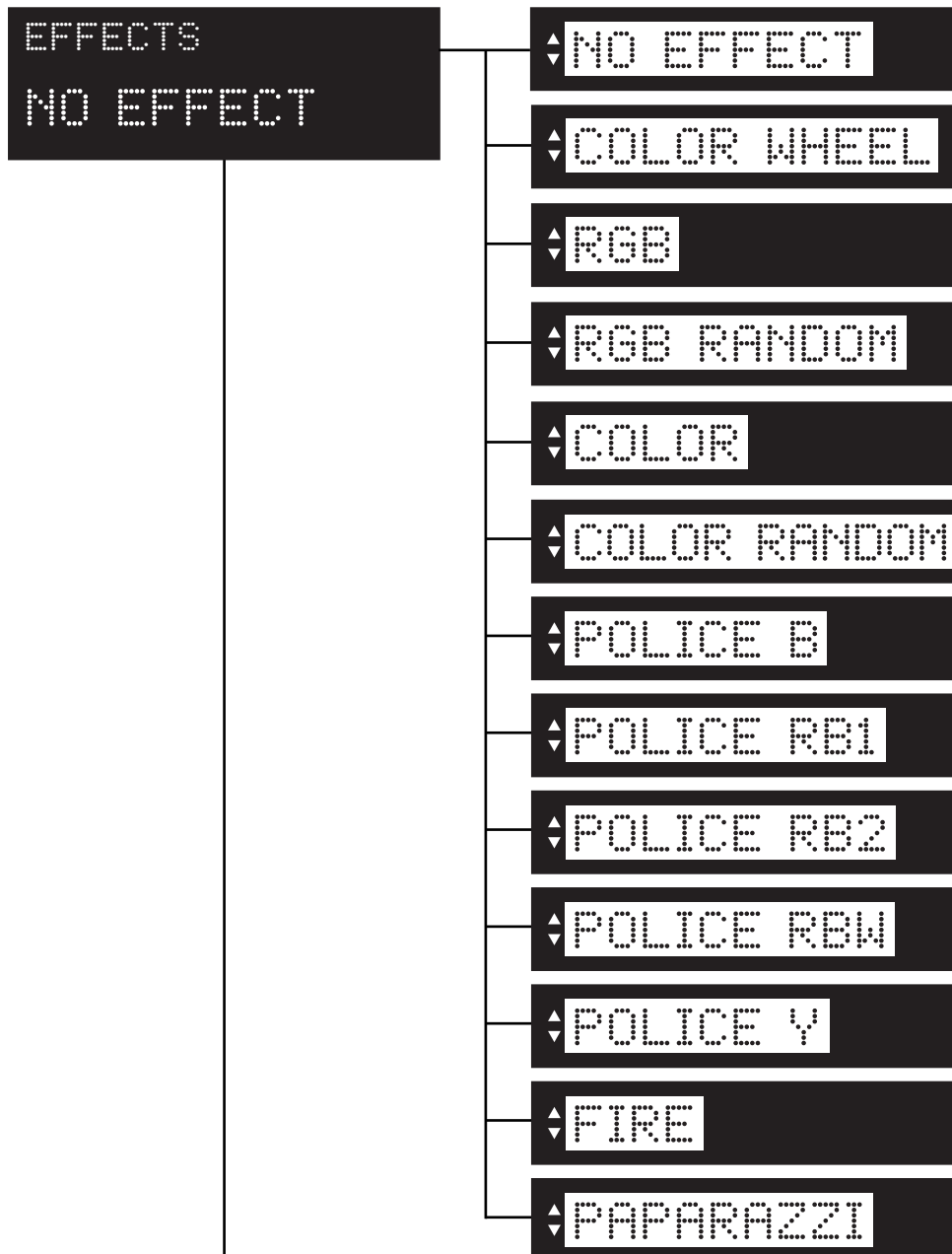EFFECTS
NO EFFECT
```

```
NO EFFECT
```

```
COLOR WHEEL
```

```
RGB
```

```
RGB RANDOM
```

```
COLOR
```

```
COLOR RANDOM
```

```
POLICE B
```

```
POLICE RB1
```

```
POLICE RB2
```

```
POLICE RBW
```

```
POLICE Y
```

```
FIRE
```

```
PAPARAZZI
```

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.

```
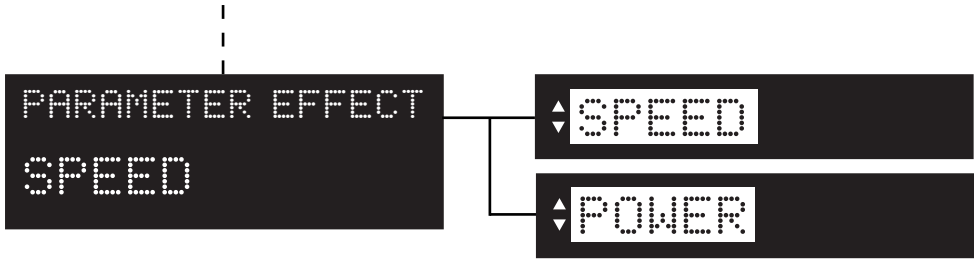PARAMETER EFFECT
SPEED
```

```
‡ SPEED
```

```
‡ POWER
```

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.

EFFECT　　　　　PARAMETER	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
  °F    MIN NOW MAX
 LED:   -°C -°C -°C
BOARD: -°C -°C -°C
```

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

```
TEMP HISTORIES
  °F    MIN NOW MAX
 LED:   -°C -°C -°C
BOARD: -°C -°C -°C
```

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

```
DMX INPUT

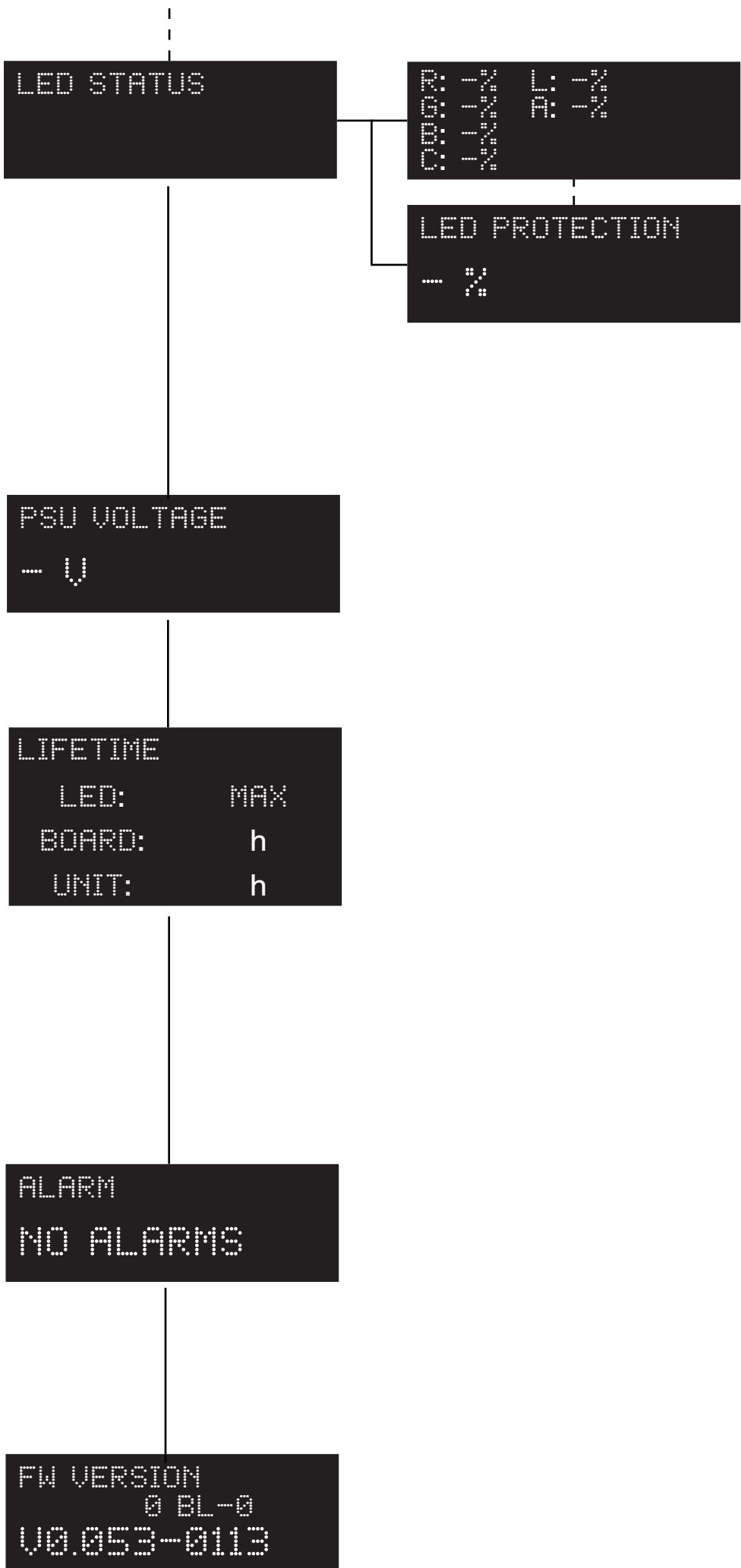1    0
```

```
↕1
```

```
↕5
```

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

0 HZ
```

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

```
FAN STATUS
         %    RPM
 LED:    -     -
 AUX:    -     -
```

FAN STATUS:
Shows the percentage fan usage.

```
LED STATUS                    R: -%    L: -%
                              G: -%    A: -%
                              B: -%
                              C: -%

                              LED PROTECTION

                              ... %
```

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

... V
```

PSU VOLTAGE:
Shows the power supply voltage.

```
LIFETIME
    LED:        MAX
  BOARD:          h
   UNIT:          h
```

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
NO ALARMS
```

ALARM:
This menu eventually shows the alarm statuses if there is any
(section **11.2 ERROR MESSAGES**).

```
FW VERSION
        0 BL-0
V0.053-0113
```

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
```

```
⬍OFF
```

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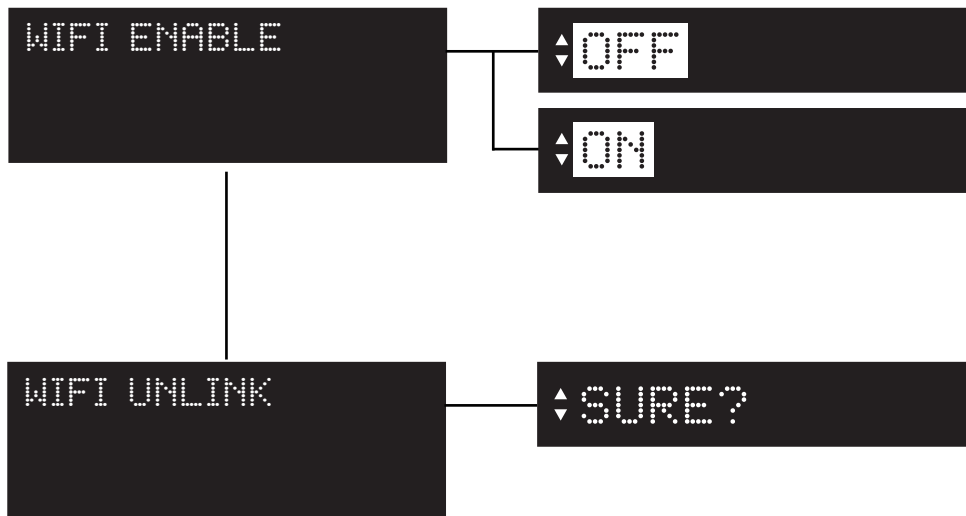
WIFI ENABLE:
It allows enable all the Wi-Fi functions

```
WIFI UNLINK
```

```
⬍SURE?
```

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** 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** 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.

13. Maintenance

13.1 Firmware update

The firmware of **LEDko EXT** 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 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 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 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.