Raptor

User's Manual Rel 1.0 GB

DTS

The Lighting Company

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1- SYMBOLS

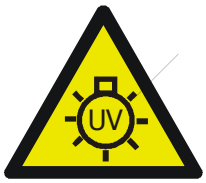
Graphic symbols used on this manual:

THIS SYMBOL INDICATES A HOT SURFACE

THIS SYMBOL INDICATES ELECTRIC SHOCK RISK

THIS SYMBOL INDICATES GENERAL RISK

THIS SYMBOL MEANS "DO NOT PLACE THE UNIT ON INFLAMMABLE SURFACES"



THIS SYMBOL MEANS "RADIATION FROM THIS LAMP CAN CAUSE DAMAGE TO EYES AND SKIN"

MINIMUM DISTANCE FROM THE OBJECTS AND THE PEOPLE LIT BY THE LIGHT BEAM

2- GENERAL WARNING

Read the instruction contained in this user manual carefully, as they give important information regarding safety during installation, use and maintenance.
The device is not for domestic use and must be installed by a qualified electrician or experienced person.
Always disconnect the device from the mains before replacing the lamp.
The lamp must be replaced if it has been damaged or deformed by prolonged use or overheating.
The device must always be equipped with an efficient ground connection.

MINIMUM DISTANCE FROM THE OBJECTS AND THE PEOPLE

The projector needs to be positioned so that the objects and the people hit by the beam of light are at least 15 meters (49,21 ft) from the unit frontal lens.

3- GENERAL WARRANTY CONDITIONS

The unit is guaranteed for 36 months from the date of purchase against manufacturing material defects.

4- TECHNICAL FEATURES

Overview

RAPTOR is the most compact Beam moving head on the market: just 37 cm x 50 cm.
RAPTOR projects the most powerful beam of light (150.000 Lux at 15 m) and the most concentrated one.
RAPTOR can perfectly focus its 17 gobos at any distance.
Its unique selectable 'Smooth' filter eliminates the hot spot typical of Beam projectors, evenly diffusing luminosity at any point of the light beam.
RAPTOR comes equipped with the 'FPR' (patented) system, which allows limitless pan rotation, in either direction, never having to reverse motion.
Also, the unit features the fastest strobe effect.

RAPTOR
(D.T.S. Product Code: 03.MB005.EB.L)
• Electronic ballast 90-260V 50/60 Hz • Black finish

RAPTOR FPR
(D.T.S. Product Code: 03.MB005.EB.LFP)
• Electronic ballast 90-260V 50/60 Hz • FPR (Free Pan Rotation) • Black finish

Lamp
Osram Sirius HRI 330W (16.500 Lumens)
Colour temperature: 7.500°K

Optical group
Beam opening: 0,6° - 3,4°
16-bit motorized linear focus
Linear dimmer / shutter / ultra-fast strobe
150.000 Lux at 15 m

Colour generation
17-colour wheel with linear selection for perfect 2-colour beams

Dynamic effects
17-gobo wheel
8-facet rotating prism

Filters
Smooth filter (eliminates the hot spot, evenly diffusing luminosity)
Frost filter

4- TECHNICAL FEATURES

Interface / Control / Programming
LCD graphic display (control / management / monitoring of the main parameters)
4 soft-keys
Controlled via DMX 512
RDM
Wireless ready
ARTNET available on request
Internal operating system updatable via D.T.S. RED BOX interface and hyperterminal program on windows based PC

DMX
18 DMX channels

Pan & Tilt
RAPTOR FPR (03.MB005.EB.LFP)
'FPR': limitless pan rotation, in either directions, never having to reverse motion
Tilt 270° (1,2 sec.)

RAPTOR (03.MB005.EB.L)
Pan 540° (2,3 sec.); Tilt 270° (1,2 sec.)

New Tri-phase stepper motor technology for ultra-fast and silent Pan &Tilt movements
16-bit movement resolution

Power supply
Electronic ballast: 90-260V 50/60 Hz
Power consumption: 450W with PFC

Energy saving
Power saving mode (the lamp dims to 80% after shutter closure)

Connectors
DMX: 4x XLR connectors (3-pole In and Out; 5-pole In and Out) by Neutrik;
Power supply: POWERCON connectors (Power In / Power Out) by Neutrik

Operating ambient temperature
-10° / 40°

Weight
15,4 Kg

Internal safety devices
Overvoltage circuit protection and overtemperature circuit protection

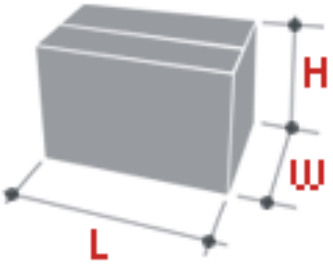
International certifications
Safety: EN 60598-1: 2009
EN 60598-2-17: 1989

EMC: EN 55015.2006

4- TECHNICAL FEATURES

Dimensions

Packaging Dimensions (LxWxH)	Unit Dimensions (LxWxH)
420 x 440 x 580 mm	368x288x538mm
Weight: 18,9 Kg	Weight: 15,4 Kg



5- ACCESSORIES

As standard

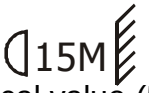
* 1 x Osram Sirius HRI 330W (already installed in the projector) (Code 0505S037)
* 1 x POWERCON male cable connector (Code 0520P014)
* 1 x XLR 5 Pins male cable connector (Code 0508B066)
* 1 x XLR 5 Pins female cable connector (Code 0508B065)
* 2 x Omega clamp with “Fast Lock” connection 1/4 turn
* User’s manual

Optional (on request)

• “C” Clamp G100 black / professional (max. load 200Kg) (Code 0521A015)
• Aliscaf Clamp (max. capacity load 100Kg) (Code 0521A008)
• Safety wire (3mm x 60 cm), ring spring catch, max. capacity load 60Kg (Code 0521A010)

6- IMPORTANT SAFETY INFORMATION

6.1 Fire prevention:

RAPTOR uses a Osram Sirius HRI 330W lamp.
The use of any other alternative lamp is not recommended and will null and void the fixture's warranty.
-Never locate the fixture on any flammable surface.
-Minimum distance from flammable materials: 1 m .
-Minimum distance from the closest illuminable surface: 15 m. 

-Replace any blown or damaged fuses only with those of identical value (5AT).
Refer to the wiring diagram if there is any doubt.
-Connect the projector to mains power via a thermal magnetic circuit breaker.

6.2 Prevention of electric shock:

-High voltage is present inside the unit.
Unplug the unit prior to performing any function which involves touching the inside of the moving head, including lamp replacement.
-The level of technology inherent in the RAPTOR requires the assistance of specialised personnel for all servicing.
Please refer to an authorised D.T.S. service centre.
-A good earth connection is essential for proper functioning of the projector.
-Never connect the unit without proper earth connection.
-The fixture should be located in places with a good air ventilation.

6.3 Protection against ultraviolet radiation:

-Never turn on the lamp if any of the lenses, filters or plastic covering are damaged. Their respective shielding functions will only operate efficiently if they are in perfect working order.
-Never look directly the lamp when it is on.

6.4 Safety:

-The projector should always be installed with bolts, clamps and other tools that are capable of supporting the weight of the unit.
-Always use a second safety cable to sustain the weight of the unit in case of the failure of the main fixing point.
-The external surface of the unit, at various points, may exceed 70°C. Never handle the unit until at least 20 minutes have elapsed since the lamp was turned off.
-Always replace the lamp if any physical damage is evident.
-Never install the fixture in an enclosed area lacking sufficient air flow.
The ambient temperature should not exceed 40°C.
-A hot lamp may explode, so always wait for at least 20 minutes prior to attempting to replace the lamp.
-Always wear suitable hand protection when handling the lamp.

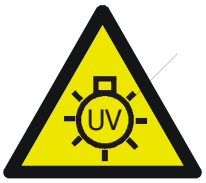
6.5 Level of protection against the penetration of solid and liquid objects:

-The projector is classified as an ordinary appliance and its protection level against the penetration of solid and liquid objects is IP20.
For outdoor use, D.T.S. reccomend the use of the dedicated raincovers.

7- MOUNTING / REPLACING THE LAMP AND LAMP ALIGNMENT

WARNING

Turn off the lamp before opening the unit head covers.
Never look directly at the lamp when it's lit.
Discharge lamps emits UV rays; radiation from this lamp can cause damage to eyes and skin.

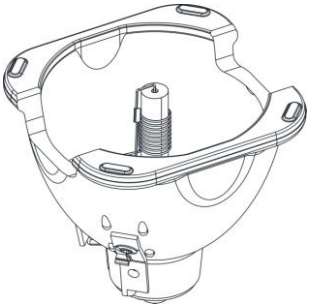


Let the projector cool for at least 20 minutes.

Switch off the unit and unplug the Mains AC cable connector before replacing the lamp.

REPLACEMENT LAMP (D.T.S. Code 0505S037) :

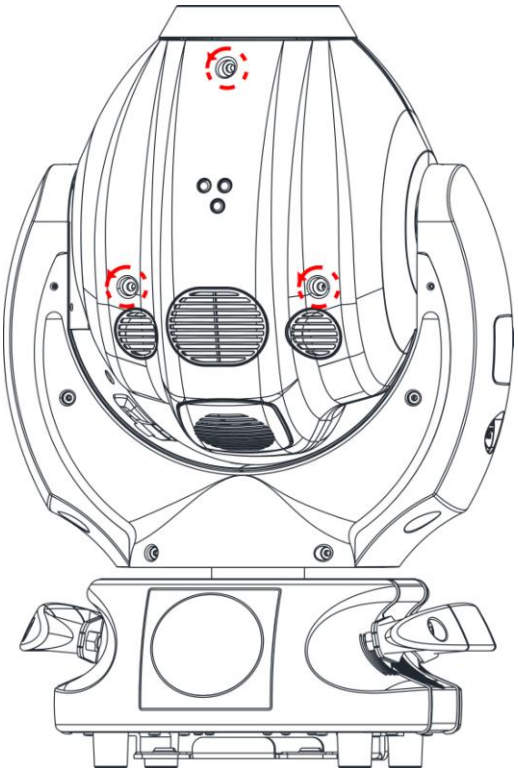
OSRAM SIRIUS HRI
Power 330W
Luminous flux 16.500 lm
Colour temperature 7.500°K
Rated life 1500 hours



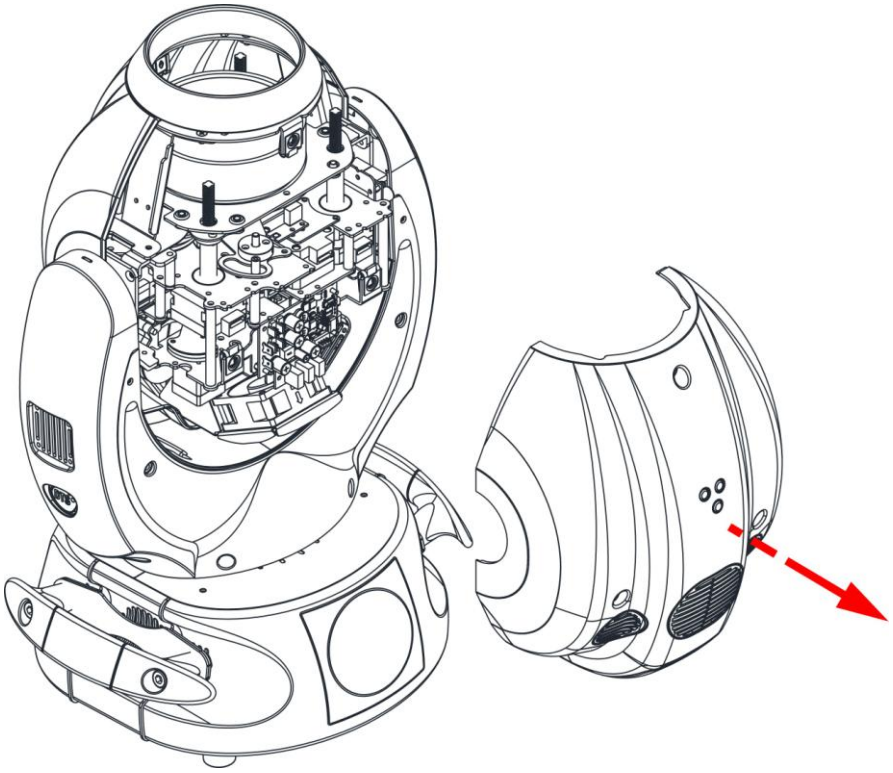
The use of any other alternative lamp is not recommended and will null and void the fixture's warranty.

1) Loosen the 3 “¼ turn” screws which fix the head covers on both sides (picture 1) .

2) Once loosened the screws, simply lift the covers to access the internal components (picture 2).

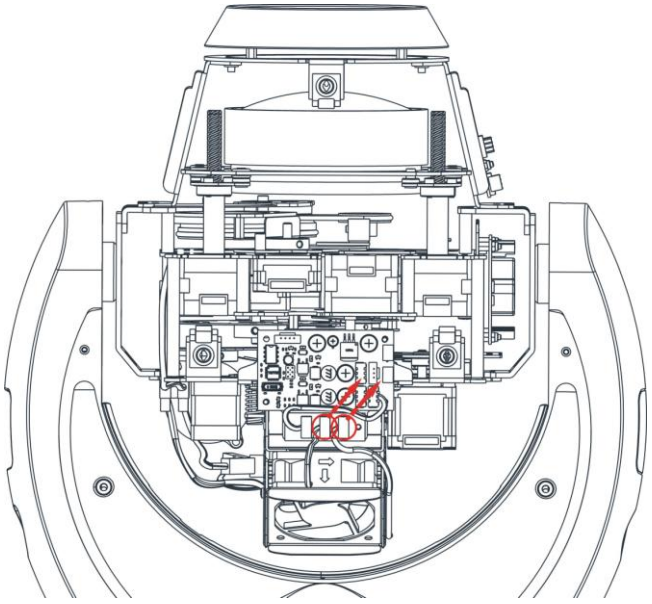


PICTURE 1

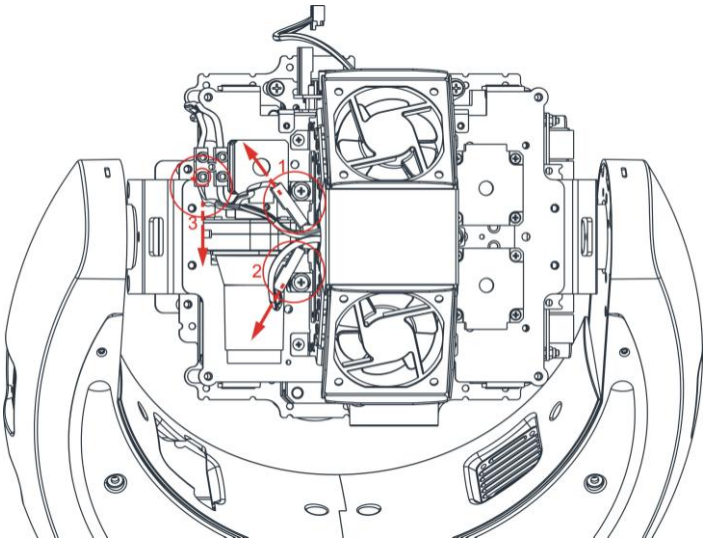


PICTURE 2

3) Unplug the indicated fan connectors from the fans resend card (picture 3);
Unplug the two indicated fast-on cable connectors (1 and 2) and using a flathead screwdriver remove the indicated lamp cable (3) from the screw connector (picture 4).

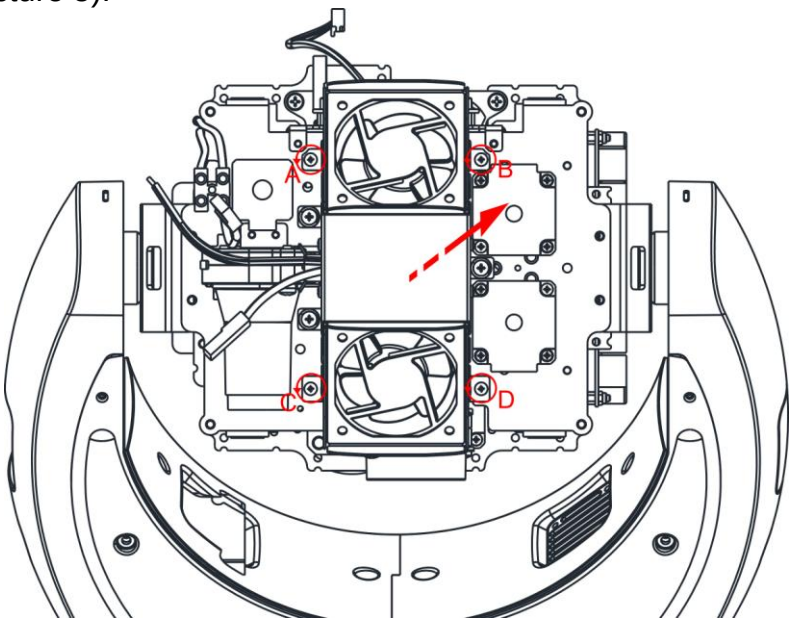


PICTURE 3



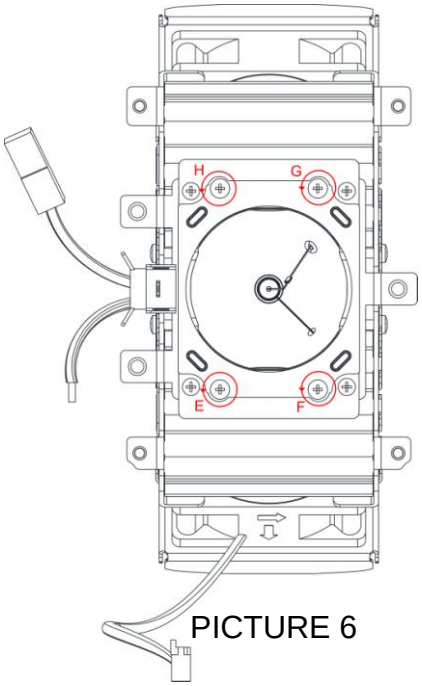
PICTURE 4

4) Using a phillips screwdriver, loose the 4 screws A, B, C, D and remove the lamp fan assembly (picture 5).

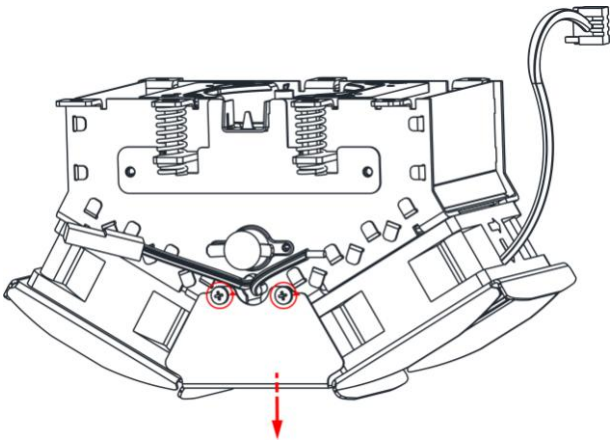


PICTURE 5

5) Loose the four screws E, F, G, H from the plate which fix the lamp (picture 6), then loose the two screws on both sides of the lamp rear metal cover (picture 7) and remove the old lamp.

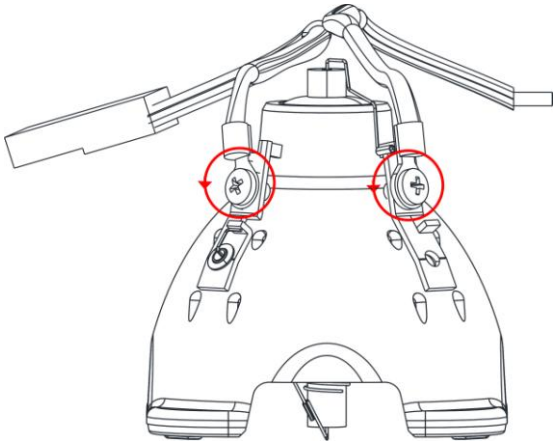


PICTURE 6



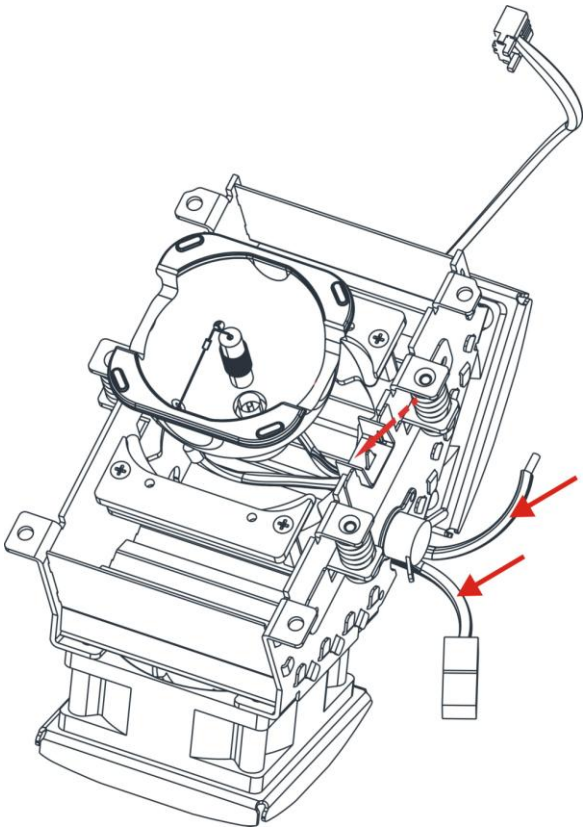
PICTURE 7

6) Remove the cable connectors from the old lamp and apply them on the new lamp (picture 8).



PICTURE 8

7) Put in place the new lamp in the lamp support.
Place the lamp connectors on the fan air conveyor side (picture 9).



PICTURE 9

8) Lamp sub-assembly can now be re-installed, following backward all the above listed steps.

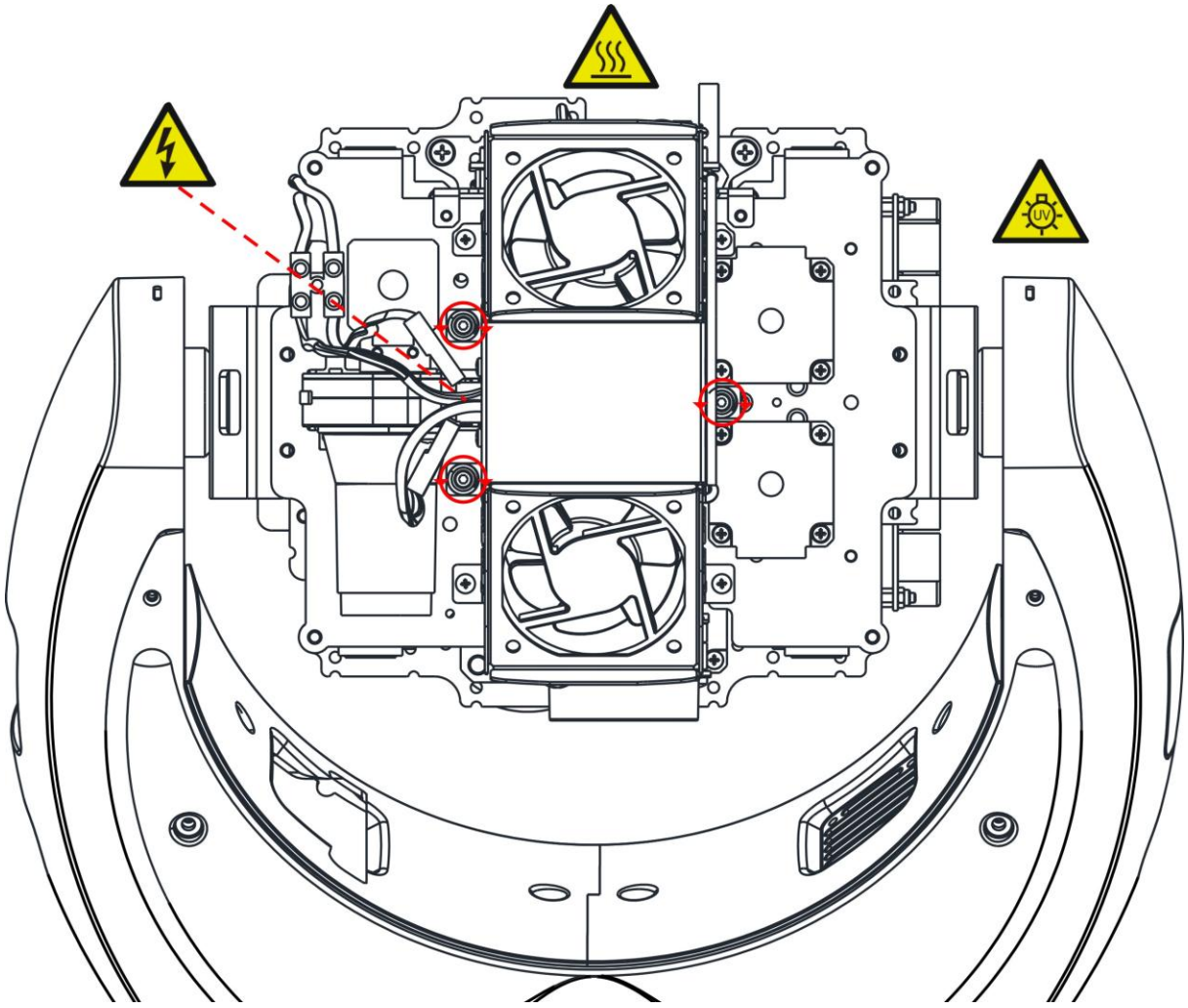
Lamp Alignment

Attention: we recommend to align the lamp in the optical system to avoid overheating of the dichroic filters and other components inside the unit.
The lamp alignment is also essential to obtain the maximum luminous performance by the projection.

1) Mount the fixture in an orientation so that it may be squarely projected onto a smooth white surface no less than 20 meters away.

2) Using a console or the “LAMP ADJUST” menu system, focus and open (white) beam onto the surface and observe the beam.

3) Using a phillips screwdriver, rotate the 3 indicated adjusters until you achieve a hot spot in the center.
When the lamp alignment is correctly optimized, you will have a hot spot in the center.

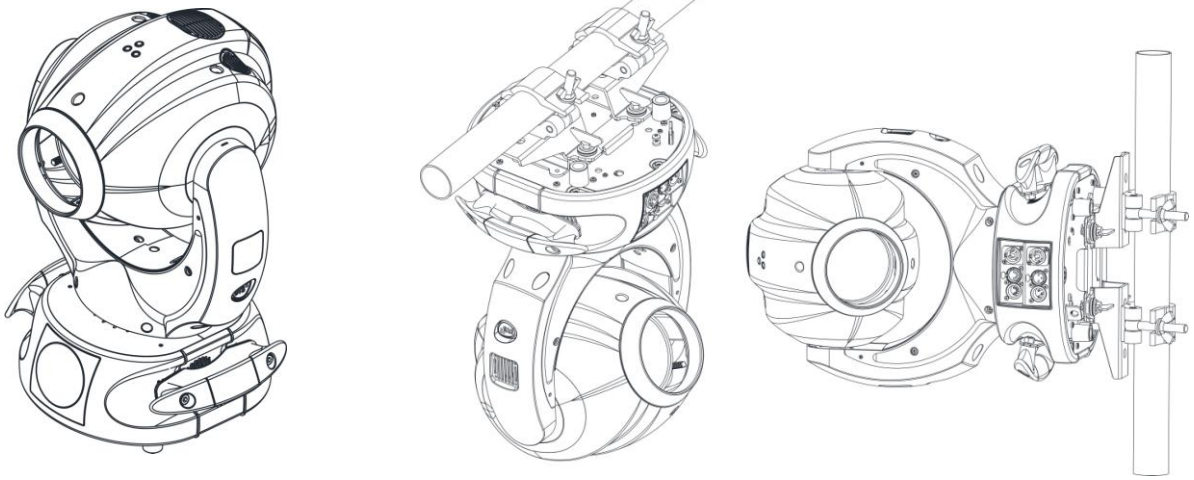


8- VOLTAGE AND FREQUENCY

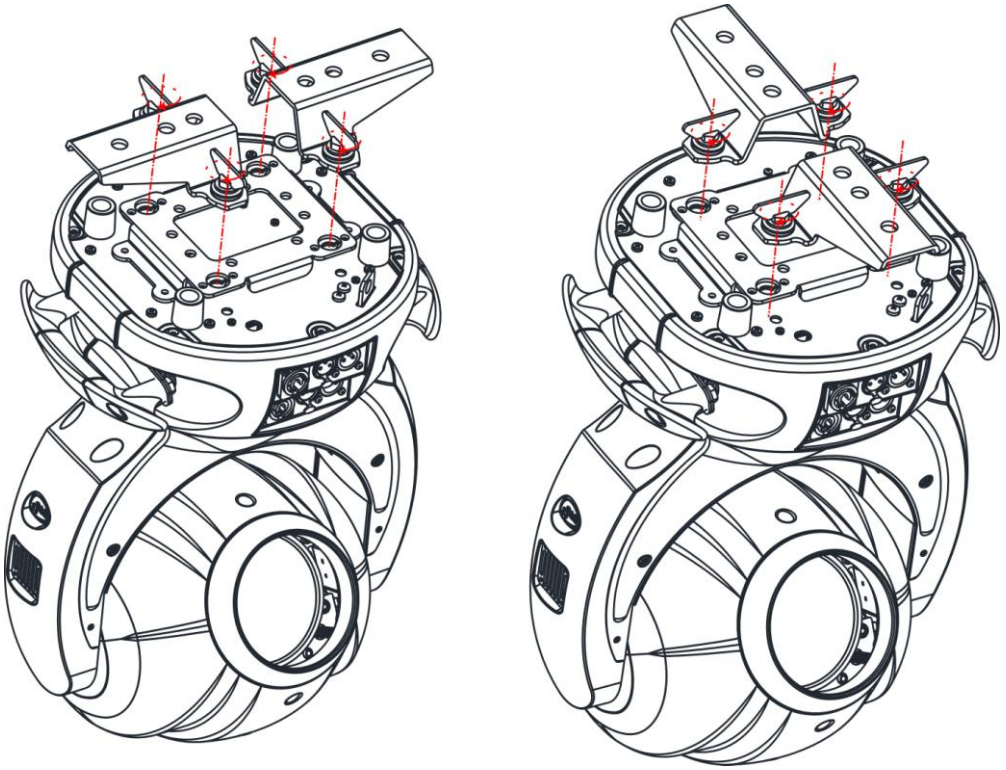
The RAPTOR with electronic ballast can operate at 90-260V 50 or 60 Hz.

9- INSTALLATION

RAPTOR may be either floor or ceiling mounted.
For floor mounting installations, the RAPTOR is supplied with four rubber mounting feet on the base.
For ceiling mounted installations, we reccomend the use of appropriate clamps to fix the unit to the mounting surface.

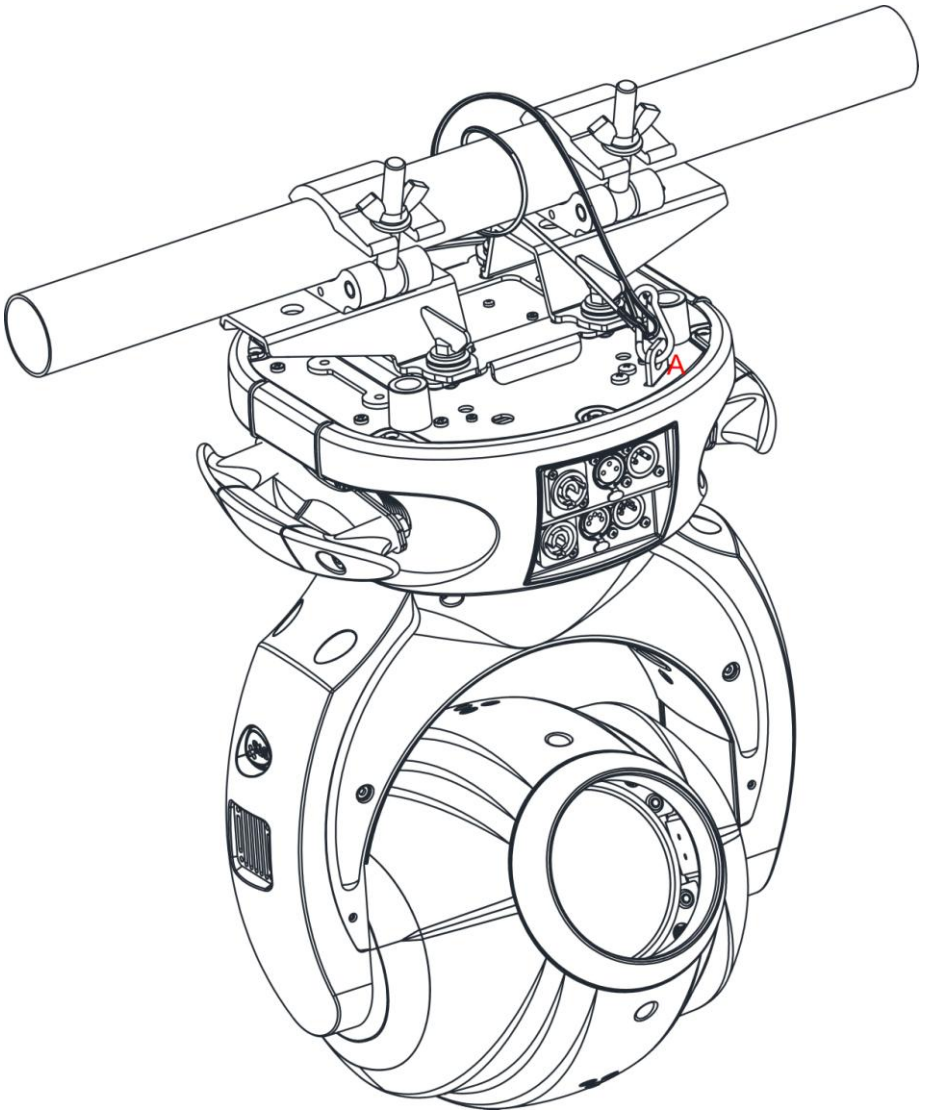


The supporting structure from which the unit is hung should be capable of bearing the weight of the unit, as should any clamps used to hang it.
The structure should also be sufficiently rigid so as not to move or shake whilst the RAPTOR is moving.
Four 1/4 turn Fast Locks connections placed in the base of the unit allow to hang the RAPTOR by using the two omega clamps (provided in the box) in conjunction with fixing clamps for truss (fixing clamps are not included into the unit box).



9.1- Safety cable

We recommend the use of a safety cable or chain connected to the RAPTOR and to the suspension truss in order to avoid the fixture accidentally falling should the main fixing point fail.
Make sure that the iron cable or chain can bear the weight of the entire unit.
You may attach the safety chain/cord to the attachment point (A) located on the base of the fixture, as shown in the picture below.



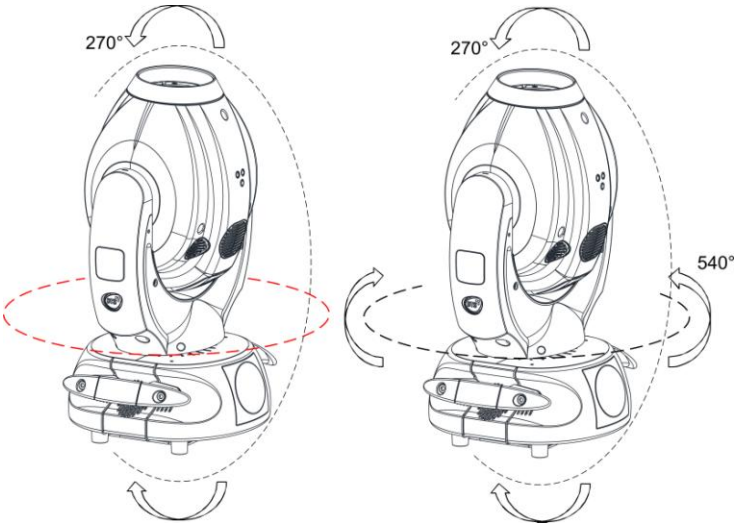
9.2 Protection against liquids

The projector contains electric and electronic components which should under no circumstances come into contact with oil, water or any other liquid.
The proper unit functioning would be compromised should this occur.

9.3- Movement

RAPTOR FPR (03.MB005.EB.LFP) Unlimited Pan rotation; Tilt 270° (1,2 sec.) .
RAPTOR (03.MB005.EB.L) Pan 540° (2,3 sec.); Tilt 270° (1,2 sec.) .
Do not place any obstructions in the path of the projector's movement.

WARNING
Do not place any object in the path of the projector's movement



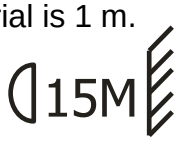
Free Pan Rotation ('FPR')
(03.MB005.EB.LFP)

No 'FPR'
(03.MB005.EB.L)

Please Note: If two different RAPTOR model (with and without FPR) are controlled at the same time via DMX controller, be shure that channel 6 (PAN FAR) is set to value 0. In this way, the RAPTOR with FPR will react to DMX same as RAPTOR with no FPR function.

9.4- Risk of fire

Each fixture produces heat and must be installed in a well-ventilated place.
The minimum recommended distance from flammable material is 1 m.

Minimum distance from the object being illuminated is 15 m. 

9.5- Forced ventilation

You will note, on inspection, that the unit features various air inlets and cooling fans located on both the base and head of the fixture.
These should, under no circumstances, be blocked or obstructed whilst the projector is in operation. Doing so could cause the fixture to seriously overheat thereby compromising its proper operation.

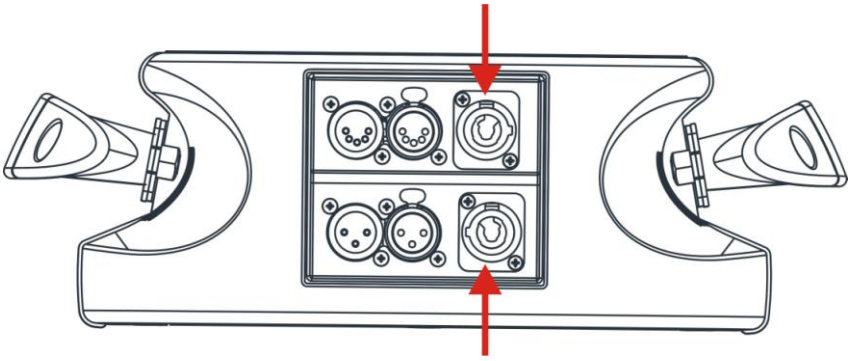
9.6- Ambient temperature

The projector should never be installed in places that lack a constant air flow.
The ambient temperature should NOT exceed 40°C.

10- MAINS CONNECTION

RAPTOR with electronic ballast operate at 90-260V 50-60 Hz.
Prior to connecting the unit to your mains supply, ensure that the model in your possession correctly matches the mains supply available.
For connection purposes, ensure that your plug is capable of supporting 1,5 amps at 230 VOLT, or 3 amps at 90 VOLT.
Strict adherence to regulatory norms is strongly recommended.

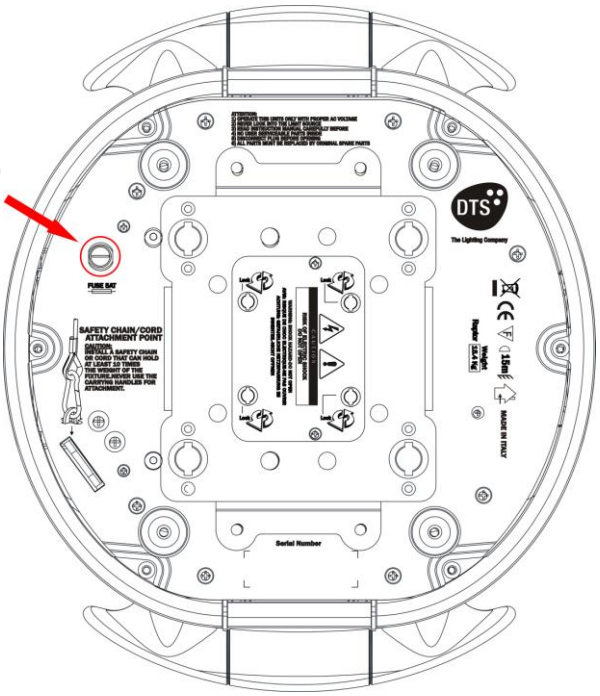
MAINS AC OUTPUT 90-260V 50/60 Hz (16A Max)
MAX 6 RAPTOR UNITS @ 230V
MAX 3 RAPTOR UNITS @ 120V



(03.MB005.EB.LFP)
(03.MB005.EB.L)

MAINS AC INPUT 90-260V 50/60 Hz

FUSE 5A T 5X20



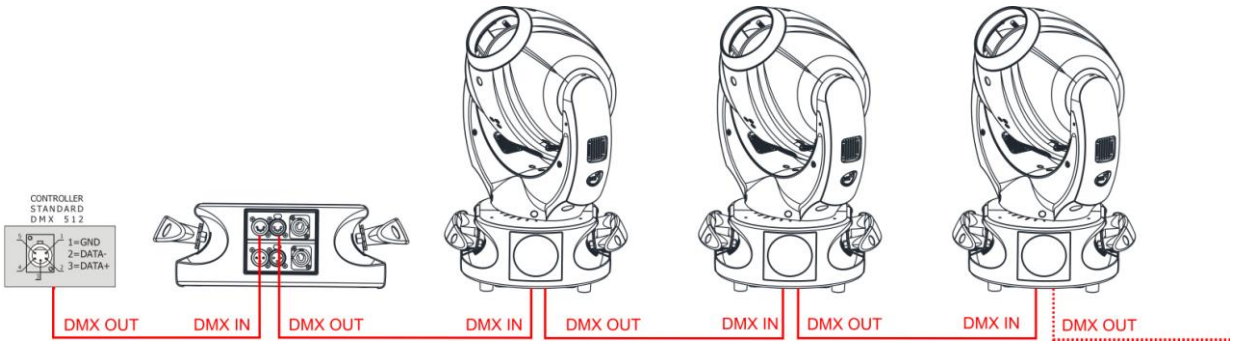
10.1- Protection

The use of a thermal magnetic circuit breaker is recommended for each RAPTOR.
A good earth connection is essential for the correct operation of the projector.

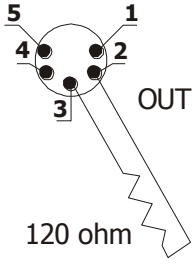
11- DMX SIGNAL CONNECTION

The unit operates using the digital DMX 512 (1990) signal.
Connection between the mixer and the projector or between projectors must be carried out using a two pair screened ø 0.5 mm cable and a XLR 5 or 3 pins connector.
Ensure that the conductors do not touch each other.
Do not connect the cable ground to the XLR chassy.
The plug housing must be isolated. Connect the mixer signal to the DMX IN projector plug and connect it to the next projector by connecting the DMX OUT plug on the first projector to the DMX IN plug of the second one.
This way, all the projectors are cascade connected.
NB. If the display showing the DMX address flashes, then one of the following errors has occurred:

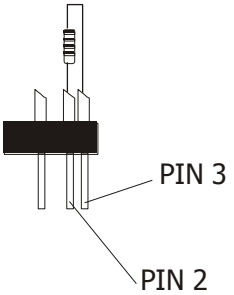
- DMX signal not present
- DMX address not valid
- DMX reception problem



For Installations where long distance DMX cable connections are needed, we suggest to use a DMX terminator.
The DMX terminator is a male XLR 3-5 pins connector with a 120 ohm resistor between pin 2 and 3.
The DMX terminator must be plugged into the last unit (DMX out panel connector) of the DMX line.



PLACE A 120 OHM RESISTOR BETWEEN PIN 2 AND 3 OF A MALE XRL CONNECTOR AND PLUG IT INTO THE DMX OUT PANEL CONNECTOR OF THE LAST UNIT CONNECTED TO THE DMX LINE



11.1-DMX Addresses

RAPTOR can be controlled with 18 DMX channels.
In order to use the unit in 18 channels, set the following addresses on the mixer:

Projector 1	A001	
Projector 2	A019	If you want to select the next projector, just add “18”
Projector 3	A037	
…..	A….	
projector 6	A091	

11.2-Selecting the DMX address

1) Press the UP-DOWN key until you reach the required DMX channel. The numbers on the display will start to flash (but the new DMX address hasn't yet been set).
2) Press ENTER to confirm your selection. The numbers on the display will stop flashing and the projector is now setted to the new DMX address.

TRICKS:
If you keep pushed the UP or DOWN keys, the channels are calculated more quickly and you get a faster selection.

12- FIRMWARE UPDATING

Warning:
This procedure require a base knowledge of computer applications and Windows Hyperterminal program. **Please refer to an authorised D.T.S. service centre.**

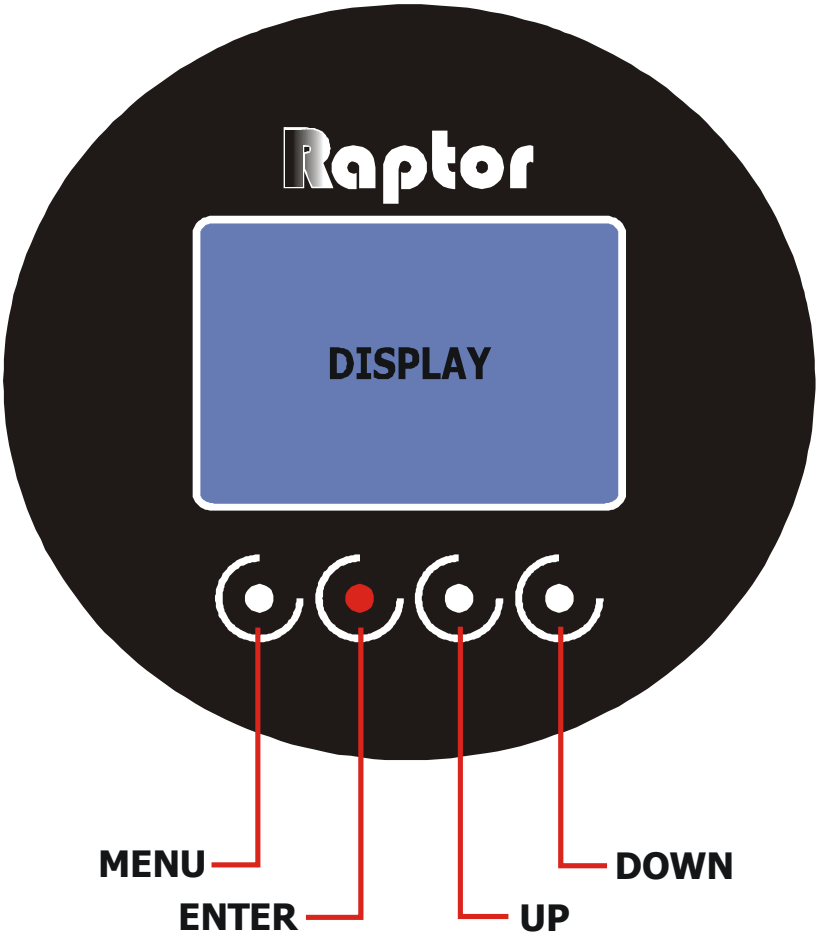
To update the software version of the RAPTOR you need:
D.T.S. RED BOX interface (D.T.S. Code: 03.LA.008).
USB-DMX Driver for the D.T.S. RED BOX interface.
(The driver and the installation procedure are available in our web site www.dts-lighting.it)

Updating the software version.
Please follow the procedure below to perform the update:

1. Install the D.T.S. RED BOX USB-DMX driver on the PC you will use to update the unit software.
2. Connect the D.T.S. RED BOX interface to the PC by using a USB cable.
3. Connect the D.T.S. RED BOX interface to the fixture by using a DMX cable.
4. Download the new software version into the unit by using Windows Hyperterminal program.

It will be possible to download the software from the reserved area of D.T.S. web site: www.dts-lighting.it.

13- DISPLAY FUNCTIONS



DISPLAY FUNCTIONS

The RAPTOR display panel shows all the available functions . Using these functions, it is possible to change some of the parameters and add some functions. Changing the D.T.S. setting can vary the functions of the unit so that it does not respond to the DMX 512 used to control it. Carefully follow the instructions below before carrying out any variations or selections.
NOTE: the symbol ☞ shows which key has to be pushed to obtain the desired function.

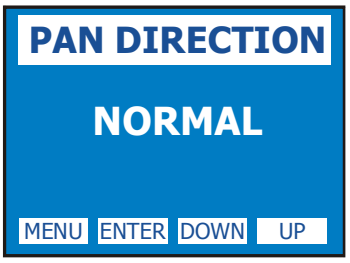
13- DISPLAY FUNCTIONS

Software Version: 18.25

Menu Up-Down Pan Direction

PAN DIRECTION
This menu allows to set the Pan movement Normal or Reversed

ENTER Up-Down



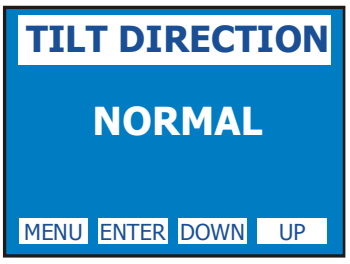
Pan movement Normal or Reversed Default = Normal

ENTER

Menu Up-Down Tilt Direction

TILT DIRECTION
This menu allows to set the Tilt movement Normal or Reversed

ENTER Up-Down



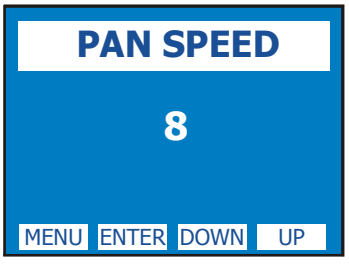
Tilt movement Normal or Reversed Default = Normal

ENTER

Menu Up-Down Pan Speed

PAN SPEED
Pan Speed control (1-8)

ENTER Up-Down



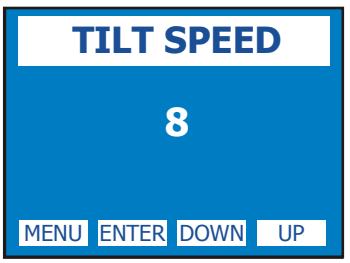
Pan Speed control (1-8) Default = 8

ENTER

Menu Up-Down Tilt Speed

TILT SPEED
Tilt Speed control (1-8)

ENTER Up-Down



Tilt Speed control (1-8) Default = 8

ENTER

13- DISPLAY FUNCTIONS

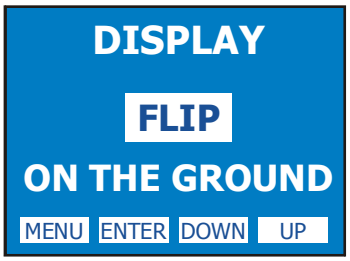
Menu Up-Down Display ENTER Up-Down

DISPLAY FLIP / STAND BY / CONTRAST

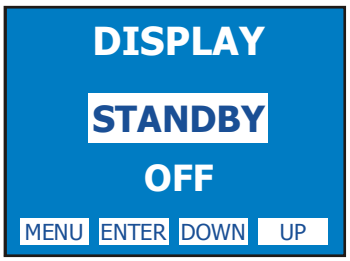
Display Flip:
Reverses display's reading depending on the mounting position
(On the ground or suspended).

Display Standby:
To turn off the display (after 5 seconds) or leave it always on.

Display Contrast:
Display contrast regulation (1-40)



Display Flip
ON THE GROUND (Default)
SUSPENDED
ENTER



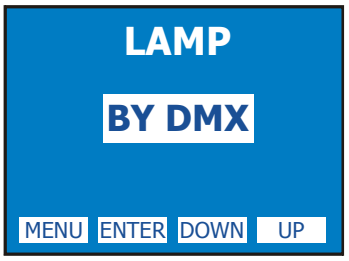
Display Standby
OFF = Display Standby disabled (Default)
ON = Display goes OFF after 5 seconds
ENTER

Display Contrast
1-40 (Default = 30)
ENTER

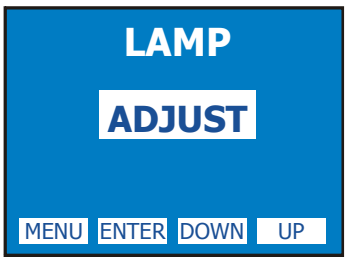
Menu Up-Down Lamp ENTER Up-Down

LAMP
Lamp always ON, always OFF, lamp ON-OFF selectable via DMX and lamp life time reset

ADJUST
To adjust the lamp with no mixer connected.
It's possible to set the parameters for PAN-TILT and FOCUS



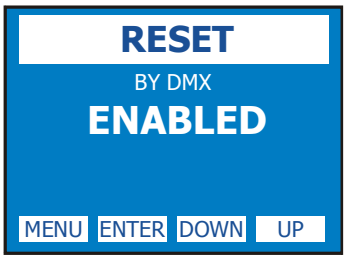
BY DMX = Lamp ON / OFF via DMX (Default)
ALWAYS ON = Forced ON
ALWAYS OFF = Forced OFF
RESET COUNTER = Lamp life time reset
ENTER



LAMP ADJUST = To adjust the lamp with no mixer connected.
It's possible to set the parameters for PAN-TILT and FOCUS
ENTER

Menu Up-Down Reset ENTER Up-Down

RESET
Reset via DMX ENABLED / DISABLED
And unit reset



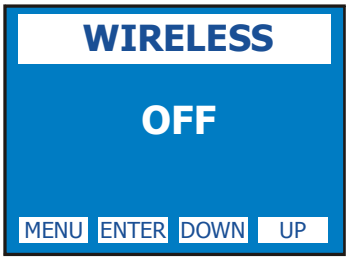
ENABLED = Reset via DMX enabled (Default)
DISABLED = Reset via DMX disabled
NOW = Unit motors reset
ENTER

13- DISPLAY FUNCTIONS

Menu Up-Down Wireless ENTER Up-Down

WIRELESS
Wireless DMX enabled / disabled.

(Wireless module on request)



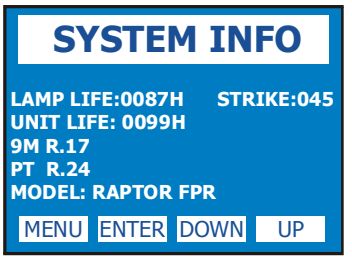
ENTER

ON = Enabled
OFF = Disabled
(Default)
UNLINK = Log out

(Wireless module on request)

Menu Up-Down System Info ENTER Up-Down

SYSTEM INFO
Lamp life time, lamp strikes, unit life time, 9 motors card software version, Pan&Tilt card software version and unit model

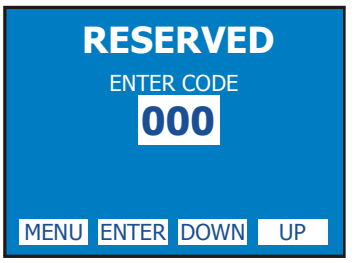


ENTER

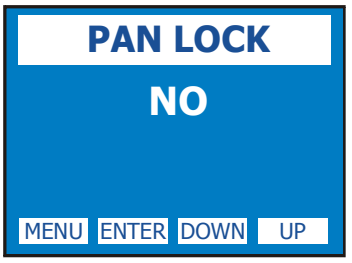
SYSTEM INFO
Lamp life time, lamp strikes, unit life time, 9 motors card software version, Pan&Tilt card software version and unit model

Menu Up-Down Reserved ENTER Up-Down

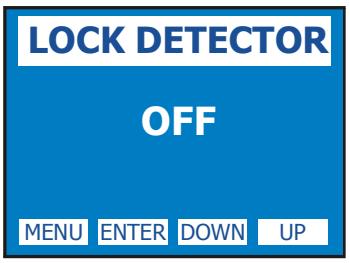
RESERVED
(Code = 100)
Pan lock-Tilt lock
Pan free-Tilt free
Lock Detector
Reboot
Exit To Main

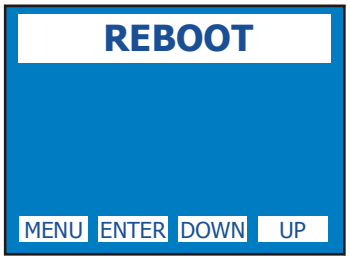


ENTER



Pan Lock = Lock the Pan to the desired value
Tilt Lock = Lock the Tilt to the desired value
Pan Free = Remove power to Pan motor
Tilt Free = Remove power to Tilt motor





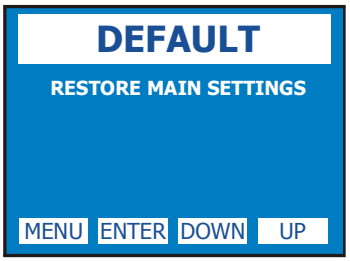
Lock Detector OFF = Default
Lock Detector ON: This function let the user to activate the Lock detector on Pan and Tilt. When Lock detector is set to ON, the unit start the Pan&Tilt motors reset normally, but if for any reason there is something blocking the movement for Pan&Tilt motors during the initial reset (example unit into the fly case and power connected), it automatically will stop to reset Pan&Tilt motors after 5 seconds from the startup and a warning message (Pan Locked-Tilt locked) will appear on unit display .

Reboot = Unit Reboot without needing of turning OFF the unit

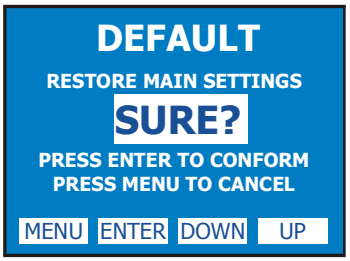
Exit To Main = Exit from Reserved menu

Menu Up-Down Default ENTER Up-Down

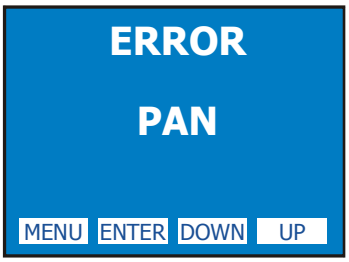
DEFAULT
To restore main settings



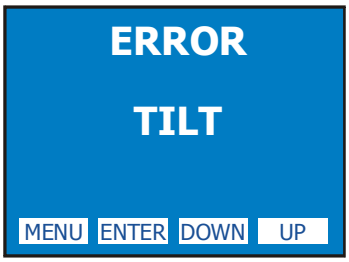
Default
To restore main settings ENTER



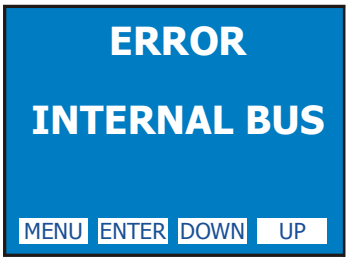
14- ERROR MESSAGES



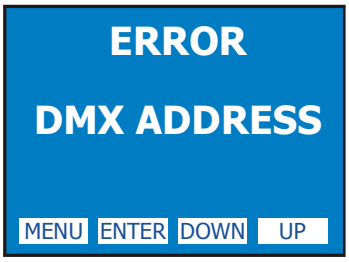
PAN REPOSITIONING ENCODER ERROR



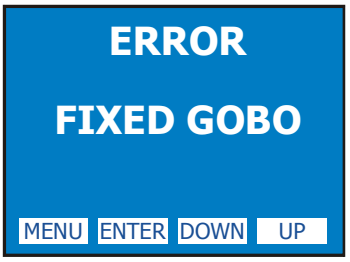
TILT REPOSITIONING ENCODER ERROR



COMMUNICATION PROBLEM BETWEEN 9 MOTORS CARD AND PAN&TILT CARD

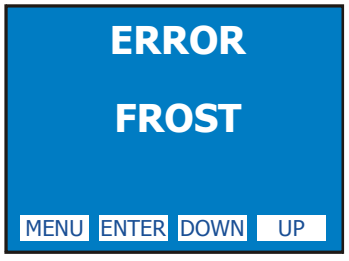


DMX ADDRESS ERROR

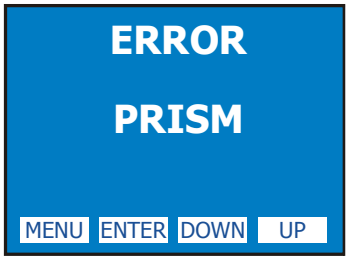


FIXED GOBO WHEEL POSITION ERROR

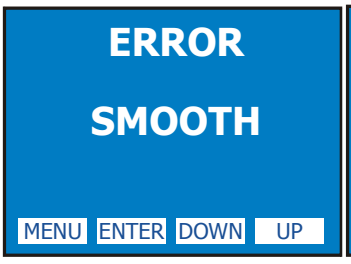
COLOUR WHEEL POSITION ERROR



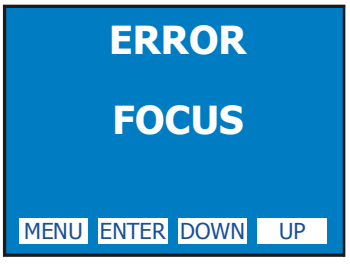
FROST BLADE POSITION ERROR



PRISM POSITION ERROR



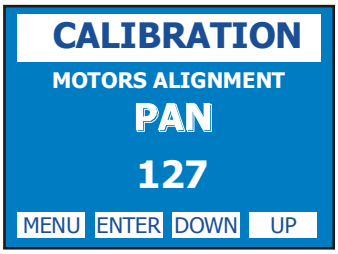
SMOOTH BLADE POSITION ERROR



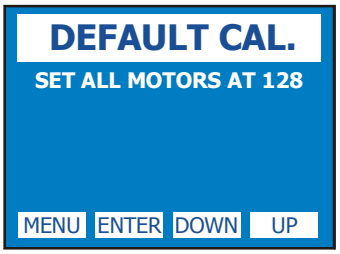
FOCUS ERROR

15- HIDDEN MENU (only for technical personnel)

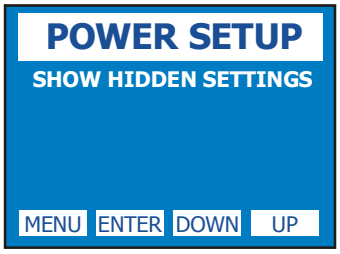
To operate this menu:
- Connect the projector to the DMX controller (DMX SIGNAL MUST BE CORRECTLY RECEIVED)
- Reset the RAPTOR (reset from the MENU, not from the DMX controller).
- While reset is running, press the MENU and ENTER keys at the same time.



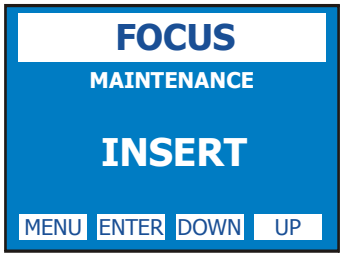
ELECTRONIC CALIBRATION OF THE MOTORS



RESET ALL SETTINGS TO VALUE 128



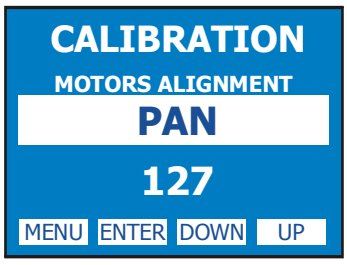
FANS / POWER SETTINGS MENU



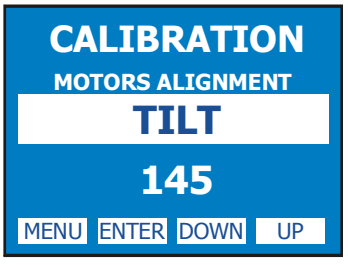
FOCUS LENS INSERTING OR EJECTING

EXIT FROM HIDDEN MENU

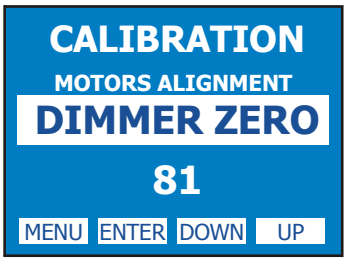
15.1 Calibration mode



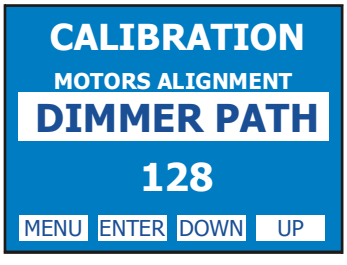
PAN ALIGNMENT
To align Pan position



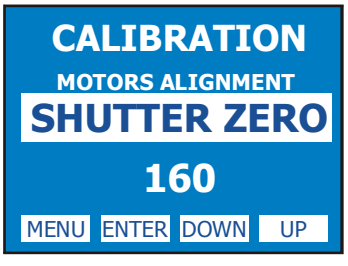
TILT ALIGNMENT
To align Tilt position



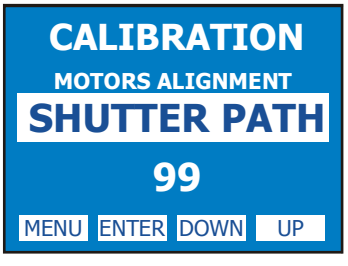
DIMMER ZERO ALIGNMENT
Dimmer zero position setting



DIMMER PATH ALIGNMENT
Dimmer excursion setting



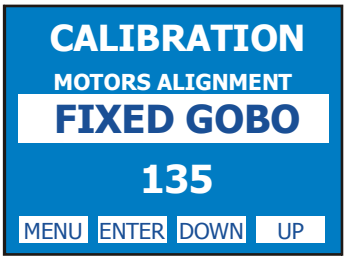
SHUTTER ZERO ALIGNMENT
Shutter zero position setting



SHUTTER PATH ALIGNMENT
Shutter excursion setting

15.1 Calibration mode

COLOUR WHEEL ALIGNMENT
To align Colour wheel



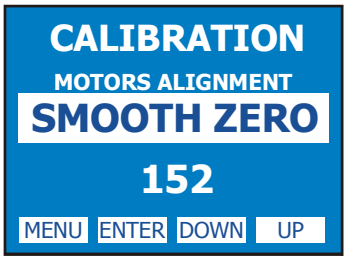
FIXED GOBO WHEEL ALIGNMENT
To align Fixed Gobo wheel

FROST ZERO ALIGNMENT
Frost zero position setting

FROST PATH ALIGNMENT
Frost excursion setting

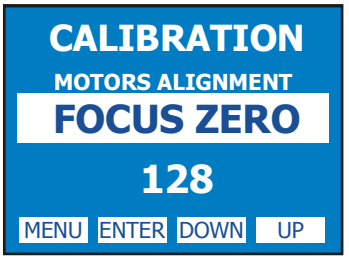
PRISM ZERO ALIGNMENT
Prism zero position setting

PRISM PATH ALIGNMENT
Prism excursion setting



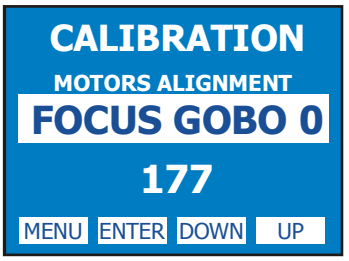
SMOOTH ZERO ALIGNMENT
Smooth zero position setting

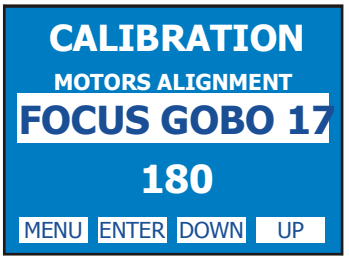
SMOOTH PATH ALIGNMENT
Smooth excursion setting



FOCUS ZERO ALIGNMENT
Focus zero position setting

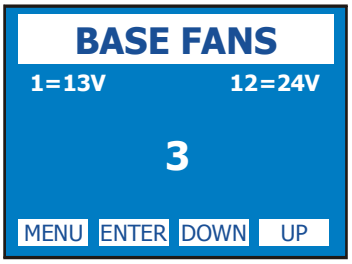
FOCUS PATH ALIGNMENT
Focus excursion setting



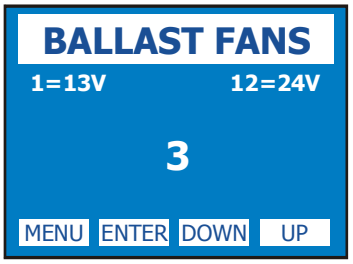


FOCUS GOBO 0-17 CALIBRATION
Focus gobo 0-17 setting

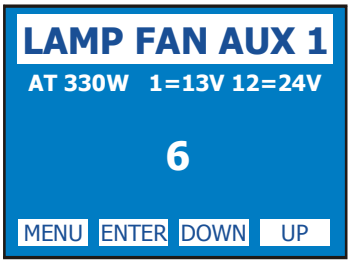
15.2 Power Setup menu (Access code only for technical personnel)



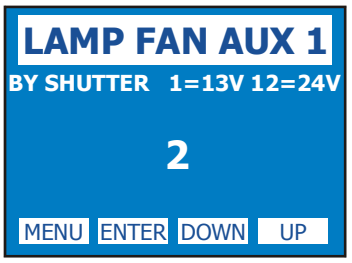
BASE FANS SPEED



BALLAST FANS SPEED

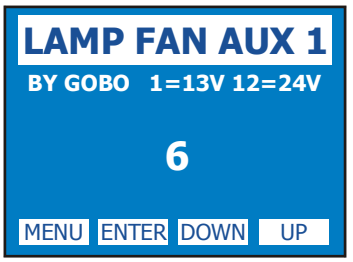


LAMP FANS SPEED WHEN OPEN INSERTED

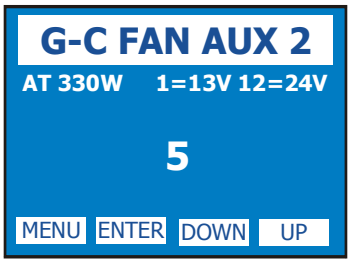


LAMP FANS SPEED
WHEN SHUTTER CLOSED

LAMP FANS SPEED
WHEN COLOURS INSERTED

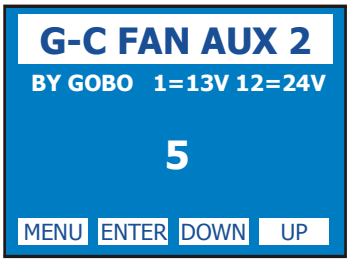


LAMP FANS SPEED
WHEN GOBOS INSERTED

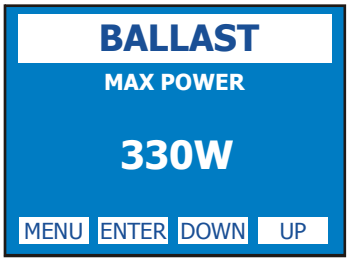


GOBO-COL. FAN SPEED
WHEN OPEN INSERTED

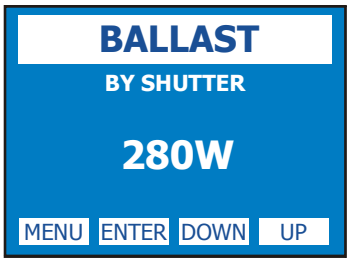
GOBO-COL. FAN SPEED
WHEN COLOUR WHEEL
INSERTED



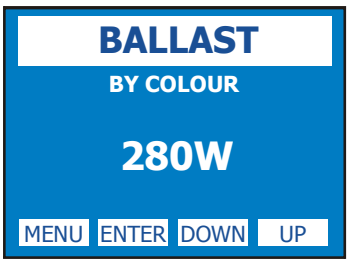
GOBO-COL. FAN SPEED
WHEN GOBO WHEEL
INSERTED



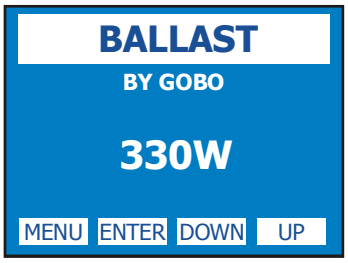
BALLAST POWER WHEN
OPEN INSERTED



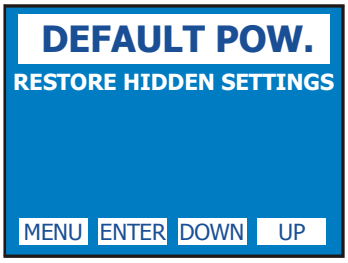
BALLAST POWER WHEN
SHUTTER CLOSED



BALLAST POWER WHEN
COLOURS INSERTED



BALLAST POWER WHEN
GOBOS INSERTED



RESTORE THE DEFAULT
FANS / POWER SETTINGS

EXIT FROM POWER SETUP
MENU

16- PAN SPEED & TILT SPEED

You can set the PAN and TILT motors at high speed on your RAPTOR.
Press menu until you see PAN SPEED / TILT SPEED.
Press ENTER and select a speed with UP-DOWN (there are 8 speeds).
Confirm by pressing ENTER.

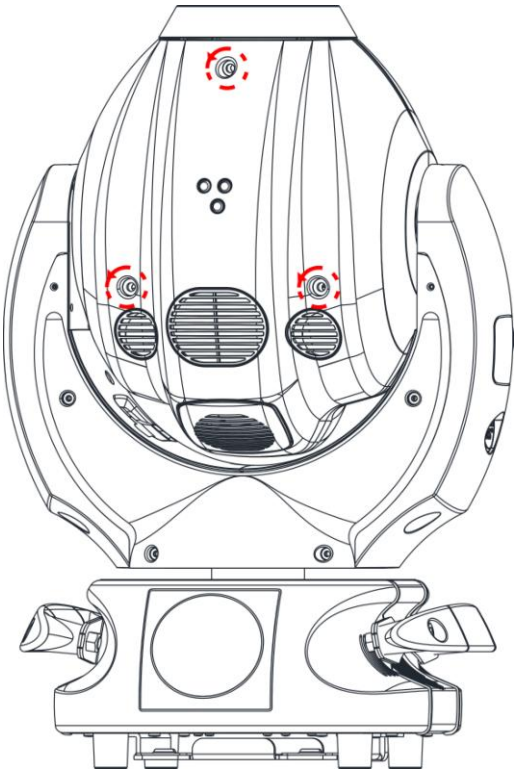
17- OPENING THE PROJECTOR HOUSING

It is possible to inspect the inside of the projector by removing the cover as indicated below.

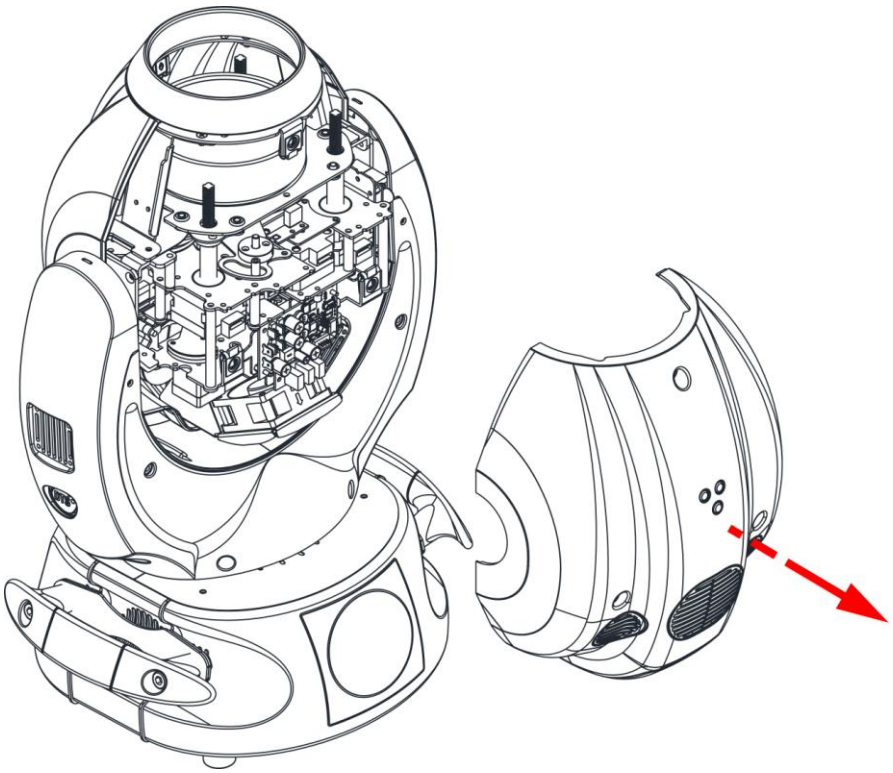
ATTENTION
REMOVE MAINS POWER PRIOR TO ACCESSING THE PROJECTOR'S INTERNAL COMPONENTS.

1) Loosen the 3 "¼ turn" screws which fix the head covers on both sides (picture 1) .

2) Once loosened the screws, simply lift the covers to access the internal components (picture 2).



PICTURE 1



PICTURE 2

18- PERIODIC CLEANING

18.1- Lenses and reflectors

Even a fine layer of dust can reduce the luminous output substantially.
Regularly clean all lenses and the reflector using a soft cotton cloth, dampened with a specialist lens cleaning solution.

18.2- Fans and air passages

The fans and air passages must be cleaned approximately every 6 weeks.
This periodic cleaning will depend of course, on the conditions in which the projector is operating.
Suitable instruments for performing this type of maintenance are a brush and a common vacuum cleaner or an air compressor.
If necessary, clean the fans and air passages more frequently.

19- PERIODIC CONTROLS

Attention

Disconnect mains power prior to removing the projector housing.

Lamp

The lamp should be replaced if there is any visible damage or deformation due to heat. This will help to avoid the danger of the lamp exploding.
RAPTOR lamp lifespan is about 1500 hours, then it is necessary to replace it.

Mechanical parts

Periodically check all mechanical parts, gears, guides, belts, etc. for wear and tear, replacing them if necessary.
Periodically check the lubrification of all components, particularly the parts subject to high temperatures.
If necessary, lubrificate with suitable lubrificant, available from your D.T.S. distributor.
Check the tension of the belts and adjust it if necessary.

Electrical components

Check all electrical components for correct earthing and proper connection of all connectors, refastening if necessary.

Fuse replacement

Locate the fuse, which protects the lamp and electronics, in the base of the RAPTOR.
Using a multimeter, test the condition of the fuse, replacing it with one of equivalent type (5AT) if necessary.

20- DMX PROTOCOL

18 CHANNELS MODE

1	**PAN msb**
2	**PAN lsb**
3	**TILT msb**
4	**TILT lsb**
5	**SPEED MOVEMENT**
6	**PAN FAR** (Active only on RAPTOR FPR)
7	**DIMMER**
8	**SHUTTER**
9	**COLOUR**
10	**COLOUR MODE**
11	**FIXED GOBO**
12	**FIXED GOBO SHAKE**
13	**FROST**
14	**SMOOTH**
15	**PRISM**
16	**PRISM ROTATION**
17	**FOCUS**
18	**RESET + LAMP**

DMX CHANNEL	1	Parameter: **PAN msb**

DMX CHANNEL	2	Parameter: **PAN lsb**

DMX CHANNEL	3	Parameter: **TILT msb**

DMX CHANNEL	4	Parameter: **TILT lsb**

DMX CHANNEL	5	Parameter: **SPEED MOVEMENT**

DMX value	Function
000-010	Standard
011-025	Fast movement
026-127	Vector mode from fast to slow
128-247	Variable time reaction to dmx signal (fast to slow)
248-255	Silent movement

DMX CHANNEL	6	Parameter: **PAN FAR**(Active only on RAPTOR FPR)

DMX value	Function
000-010	Position mode 540° (standard path)
011-020	Position mode 360° (1 turn)
021-030	Position mode 720° (2 turns)
031-040	Position mode 1080° (3 turns)
041-050	Position mode 1440° (4 turns)
051-060	Position mode 1800° (5 turns)
061-070	Position mode 2160° (6 turns)
071-080	Position mode 2520° (7 turns)
081-090	Position mode 2880° (8 turns)
091-100	Position mode 3240° (9 turns)
101-110	Position mode 3600° (10 turns)
111-120	Position mode 360° smart path
121-182	Forward spin rotation speed from max to min
183-193	Stop
194-255	Reverse spin rotation speed from min to max

DMX CHANNEL	7	Parameter: **DIMMER**

DMX value	Function
000-007	Black-out
008-255	Proportional dimmer

DMX CHANNEL	8	Parameter: **SHUTTER**

DMX value	Function
000-019	Black-out
020-039	Open
040-059	Black-out
060-079	Strobe random speed
080-084	Strobe speed 1 (1 flash/sec)
085-089	Strobe speed 2 (2 flash/sec)
090-094	Strobe speed 3 (3 flash/sec)
095-099	Strobe speed 4 (4 flash/sec)
100-104	Strobe speed 5 (5 flash/sec)
105-109	Strobe speed 6 (6 flash/sec)
110-114	Strobe speed 7 (7 flash/sec)
115-119	Strobe speed 8 (8 flash/sec)
120-124	Strobe speed 9 (10 flash/sec)
125-129	Strobe speed 10 (12 flash/sec)
130-134	Strobe speed 11 (15 flash/sec)
135-139	Strobe speed 12 (18 flash/sec)
140-149	Flash open speed 1
150-159	Flash open speed 2
160-169	Flash open speed 3
170-179	Flash open speed 4
180-189	Flash closed speed 1
190-199	Flash closed speed 2
200-209	Flash closed speed 3
210-219	Flash closed speed 4
220-227	Colours/Gobo in black-out
228-233	Pan/Tilt in black-out
234-255	Open

DMX CHANNEL	9	Parameter: **COLOUR**

IF CHANNEL 10 = FULL COLOUR (DMX range value 0-63)

DMX value	Function
000-013	Colour 1
014-027	Colour 2
028-041	Colour 3
042-055	Colour 4
056-069	Colour 5
070-083	Colour 6
084-097	Colour 7
098-111	Colour 8
112-125	Colour 9
126-139	Colour 10
140-153	Colour 11
154-167	Colour 12
168-181	Colour 13
182-195	Colour 14
196-209	Colour 15
210-223	Colour 16
224-237	Colour 17
238-255	Colour 18

IF CHANNEL 10 = HALF COLOUR (DMX range value 64-127)

DMX value	Function
000-012	Colour 1
013-025	Colour 1-2
026-038	Colour 2-3
039-051	Colour 3-4
052-064	Colour 4-5
065-077	Colour 5-6
078-090	Colour 6-7
091-103	Colour 7-8
104-116	Colour 8-9
117-129	Colour 9-10
130-142	Colour 10-11
143-155	Colour 11-12
156-168	Colour 12-13
169-181	Colour 13-14
182-194	Colour 14-15
195-207	Colour 15-16
208-220	Colour 16-17
221-233	Colour 17-18
234-255	Colour 18-1

IF CHANNEL 10 = PROPORTIONAL COLOUR (DMX range value 128-191)

DMX value	Function
000-010	No colour
011-255	Proportional colour

IF CHANNEL 10 = RAINBOW (DMX range value 192-255)

DMX value	Function
000-009	No colour
010-127	Right rotation speed from max to min
128-137	Stop
138-255	Left rotation speed from min to max

DMX CHANNEL	10	Parameter: **COLOUR MODE**

DMX value	Function
000-063	Full colour
064-127	Half colour
128-191	Proportional colour
192-255	Rainbow

DMX CHANNEL	11	Parameter: **FIXED GOBO**

DMX value	Function
000-010	Open
011-021	Gobo 1
022-032	Gobo 2
033-043	Gobo 3
044-054	Gobo 4
055-065	Gobo 5
066-076	Gobo 6
077-087	Gobo 7
088-098	Gobo 8
099-109	Gobo 9
110-120	Gobo 10
121-131	Gobo 11
132-142	Gobo 12
143-153	Gobo 13
154-164	Gobo 14
165-175	Gobo 15
176-186	Gobo 16
187-255	Gobo 17

DMX CHANNEL	12	Parameter: **FIXED GOBO SHAKE**

DMX value	Function
000-009	Stop
010-016	Gobo shake R-L speed 1
017-023	Gobo shake R-L speed 2
024-030	Gobo shake R-L speed 3
031-037	Gobo shake R-L speed 4
038-044	Gobo shake R-L speed 5
045-051	Gobo shake R-L speed 6
052-058	Gobo shake R-L speed 7
059-065	Gobo shake R-L speed 8
066-072	Gobo shake R-L speed 9
073-079	Gobo shake R-L speed 10
080-086	Gobo shake R-L speed 11
087-093	Gobo shake R-L speed 12
094-100	Gobo shake R-L speed 13
101-107	Gobo shake R-L speed 14
108-114	Gobo shake R-L speed 15
115-126	Gobo shake R-L speed 16
127-138	Stop
139-145	Gobo shake L-R speed 1
146-152	Gobo shake L-R speed 2
153-159	Gobo shake L-R speed 3
160-166	Gobo shake L-R speed 4
167-173	Gobo shake L-R speed 5
174-180	Gobo shake L-R speed 6
181-187	Gobo shake L-R speed 7
188-194	Gobo shake L-R speed 8
195-201	Gobo shake L-R speed 9
202-208	Gobo shake L-R speed 10
209-215	Gobo shake L-R speed 11
216-222	Gobo shake L-R speed 12
223-229	Gobo shake L-R speed 13
230-236	Gobo shake L-R speed 14
237-243	Gobo shake L-R speed 15
244-255	Gobo shake L-R speed 16

DMX CHANNEL	13	Parameter: **FROST**

DMX value	Function
000-007	No function
008-255	Frost inserted

DMX CHANNEL	14	Parameter: **SMOOTH**

DMX value	Function
000-127	No function
128-255	Smooth inserted

DMX CHANNEL	15	Parameter: **PRISM**

DMX value	Function
000-127	No function
128-255	Prism inserted

DMX CHANNEL	16	Parameter: **PRISM ROTATION**

DMX value	Function
000-009	Stop
010-127	Left rotation from fast to slow
128-137	Stop
138-255	Right rotation from slow to fast

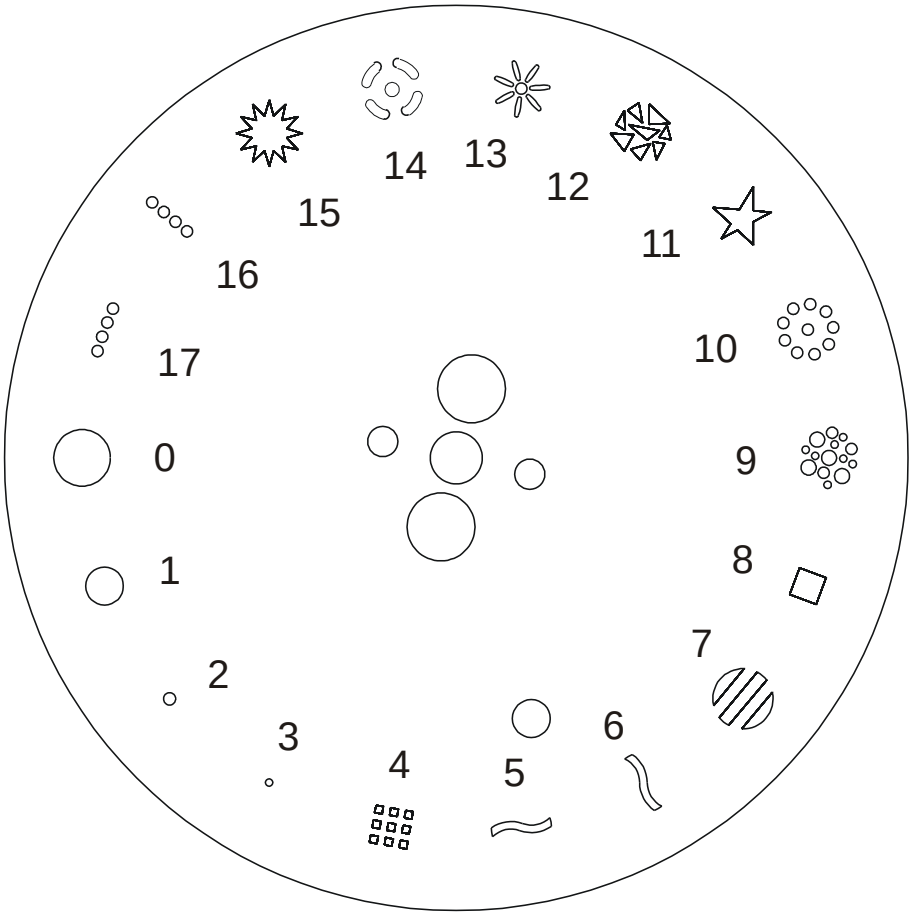
DMX CHANNEL	17	Parameter: **FOCUS**

DMX value	Function
000-255	Linear focus

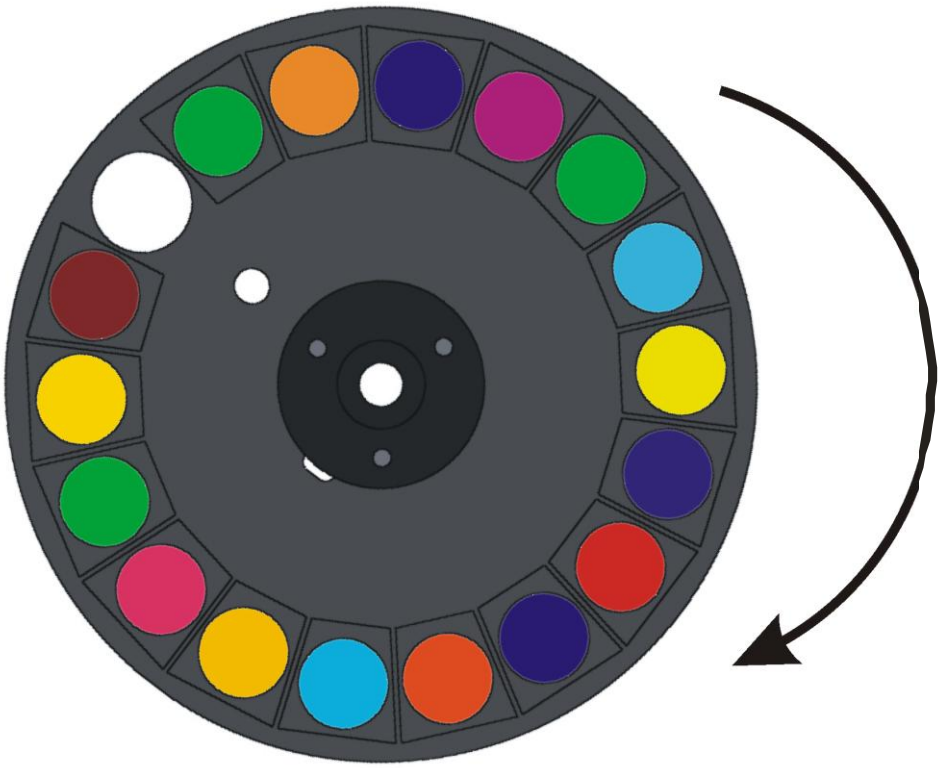
DMX CHANNEL	18	Parameter: **RESET + LAMP**

DMX value	Function
000-009	No effect
010-060	Lamp OFF (3 sec)
061-129	No effect
130-179	Lamp ON (3 sec)
180-200	No effect
201-239	Internal motor reset
240-255	Total reset

21- FIXED GOBO WHEEL



22- COLOUR WHEEL



COLOUR 1 RED	COLOUR 2 YELLOW 1	COLOUR 3 GREEN	COLOUR 4 PINK	COLOUR 5 FULL CTO	COLOUR 6 FULL CTB
D.T.S. Code: (0507C059.D14)	D.T.S. Code: (0507C065.D14)	D.T.S. Code: (0507C068.D14)	D.T.S. Code: (0507C071.D14)	D.T.S. Code: (0507C061.D14)	D.T.S. Code: (0507C060.D14)

COLOUR 7 ORANGE	COLOUR 8 DARK BLUE	COLOUR 9 LIGHT RED	COLOUR 10 PURPLE	COLOUR 11 YELLOW 2	COLOUR 12 LIGHT BLUE
D.T.S. Code: (0507C063.D14)	D.T.S. Code: (0507C069.D14)	D.T.S. Code: (0507C062.D14)	D.T.S. Code: (0507C072.D14)	D.T.S. Code: (0507C066.D14)	D.T.S. Code: (0507C075.D14)

COLOUR 13 LIGHT GREEN	COLOUR 14 MAGENTA	COLOUR 15 BLUE	COLOUR 16 AMBER	COLOUR 17 DARK GREEN
D.T.S. Code: (0507C073.D14)	D.T.S. Code: (0507C074.D14)	D.T.S. Code: (0507C070.D14)	D.T.S. Code: (0507C064.D14)	D.T.S. Code: (0507C067.D14)

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DTS

The Lighting Company

ISO 9001:2008

D.T.S. quality system
is certified to the
ISO 9001:2008 standard

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