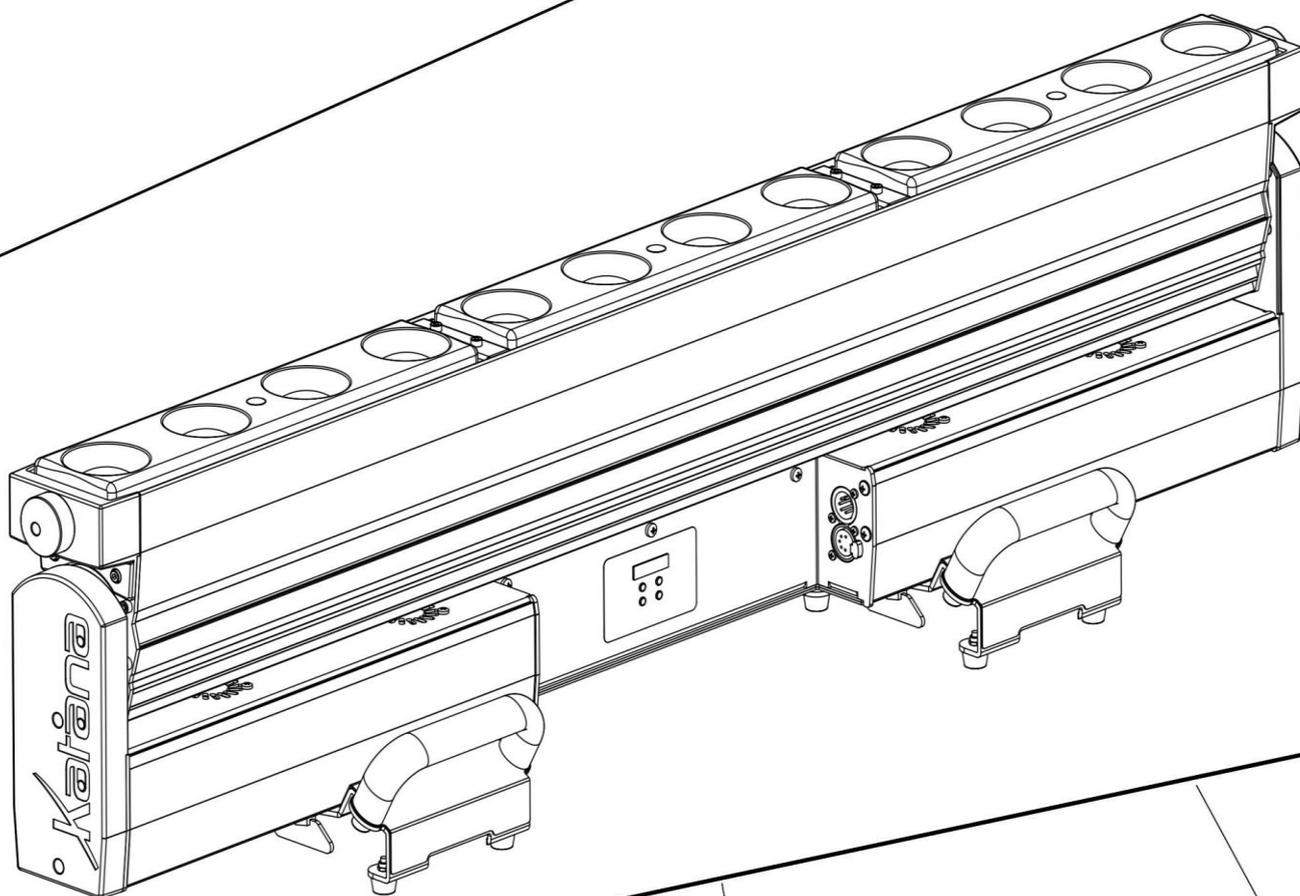


KATANA

USER'S MANUAL



Release 1.7

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INDEX:

1-SYMBOLS.....	4
2-GENERAL WARNING	5
3-GENERAL WARRANTY CONDITIONS.....	5
4-TECHNICAL FEATURES	5
5-ACCESSORIES	7
6-IMPORTANT SAFETY INFORMATION.....	8
6.1 Fire prevention.....	8
6.2 Prevention of electric shock.....	8
6.3 Safety	8
6.4 Level of protection against the penetration of solid and liquid objects	8
6.5 Waste Electrical and Electronic Equipment directive.....	8
7-VOLTAGE AND FREQUENCY	9
8-INSTALLATION	9
8.1 Safety cable.....	9
8.2 Protection against liquids.....	11
8.3 Movement.....	11
8.4 Risk of fire	11
8.5 Forced ventilation	11
8.6 Ambient temperature	11
9-MAINS CONNECTION	12
9.1 Protection	12
10-DMX SIGNAL CONNECTION.....	13
10.1 DMX addresses.....	14
10.2 Selecting the DMX address	14
11-FIRMWARE UPDATING	14
12-DISPLAY FUNCTIONS	15
13-PERIODIC CLEANING	20
14-PERIODIC CONTROLS	20
15-LEDs SEQUENCE FOR PIXEL TO PIXEL CONTROL	21
16-DMX PROTOCOL	22

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 "SUITABLE FOR INDOOR USE ONLY"



THIS SYMBOL MEANS "SUITABLE FOR MOUNTING ON NORMALLY FLAMMABLE SURFACES"



THIS SYMBOL INDICATES THE MINIMUM DISTANCE FROM THE ILLUMINATED OBJECTS



THIS SYMBOL MEANS "DO NOT STARE AT THE OPERATING LIGHT SOURCE"



Risk Group 2

THIS SYMBOL INDICATES PHOTOBIOLOGICAL SAFETY



THIS SYMBOL INDICATES THE EUROPEAN COMMUNITY DIRECTIVE 2012/19/EC ON WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE)

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 household use and must be installed by a qualified electrician or experienced person.

Always disconnect the device from the mains before maintenance.

The device must always be equipped with an efficient ground connection.



WARNING!
**NEVER EXPOSE THE FRONT LENS
 TO SUNLIGHT FROM ANY ANGLE
 TO AVOID DAMAGE OF
 HEAD INTERNAL PARTS.**

Front lens could become powerful magnifying glass if exposed towards the sun or any strong artificial light source; this can cause damage of head internal parts, even for few seconds and even when the unit is off.

The last command before switch off: point the front lens down towards the ground.

3- GENERAL WARRANTY CONDITIONS

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

The warranty covers defects in materials and workmanship. The warranty is not applicable where a defect is caused by misuse or unauthorised repair of the product.

Any functional or/and physical modification of the product is not allowed.

4- TECHNICAL FEATURES

Overview

KATANA is the most advanced LED light ever designed for the entertainment market. KATANA introduces a brand new type of light beam: the dynamic 'blade' projection.

Thanks to a custom 3.5° - 30° linear zoom, KATANA is capable to project an extra-bright blade of light that cuts through any show.

Single pixel control lets you obtain stunning dynamic multicolor effects.

And a super-fast motorized tilt adds a dynamic impact to your lighting performance.

DTS Product code:

03.LDR016.F KATANA

LED Technology

* 12 x 20W OSTAR STAGE "N" FULL RGBW LEDs

* Pixel to pixel control

* 9600 Lumens

Optical group

* 3.5°('blade' mode) - 30° linear motorized zoom

Colour generation

* 16 million colours

* Variable linear colour temperature (2700K – 8000K)

Tilt

* Motorized Tilt $\pm 95^\circ$

* 16-bit movement resolution

Interface / Control / Programming

* Multi-function 4-Digit 7-Segment LED Display + 4 soft keys:
control / management / monitoring of the main parameters

* Controlled via DMX 512 and RDM standard digital communication protocols

* Internal operating system updatable via DTS RED BOX interface via "DTS firmware upgrade utility" program on windows based PC

DMX

24 DMX channels (default), 64 DMX channels or 16 DMX channels

Power supply

* Electronic full-range 100-240Vac 50-60 Hz

* Power consumption: 300W Max

Connectors

* DMX: XLR 5 pins In / Out panel connectors

* Power supply: PowerCon TRUE1 In / Out panel connectors

Operating ambient temperature

-10° / 40°

Weight

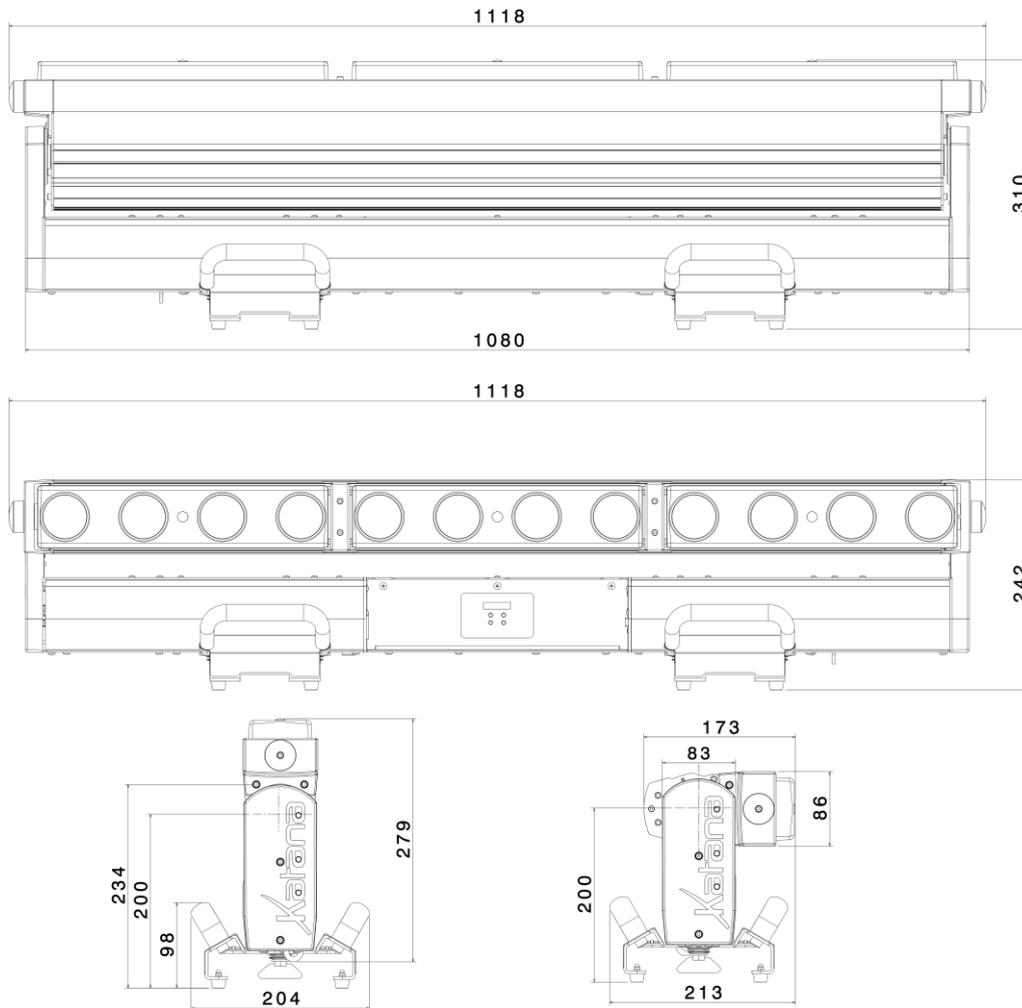
16 Kg (product without brackets for ground installation)

Certifications

2014/35/UE ; 2014/30/UE
IEC 62471 ; IEC 695-2-1

EN 60598-1 ; EN 62471 ; EN 61347-2-13
EN 60598-2-17 ; EN 55015 EMC ; EN 61347-1

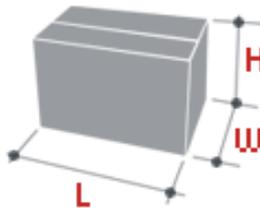
Dimensions



Packaging Dimensions (LxWxH)

1160 x 250 x 365 mm

Weight: 24 Kg



5- ACCESSORIES

As standard

- 1 x PowerCon TRUE1 female cable connector (cod. 0520P066)
- 1 x XLR 5 pins female cable connector (cod. 0508B147)
- 1 x XLR 5 pins male cable connector (cod. 0508B148)
- 2 x Omega bracket with "Fast Lock" connection 1/4 turn (cod. 02K00467)
- 2 x Bracket for ground installation with handles and rubber feet (already mounted on the unit) (cod. 02SK0296)
- User's manual

Optional (on request)

- "C" Clamp G60 black (max. load 50Kg) (cod. 0521A004)
- Aliscaf clamp for tube diameter 50 mm (max. load. 100Kg) (cod. 0521A008)
- Safety wire (3mm x 60 cm), max. capacity load 60Kg (cod. 0521A010)

6- IMPORTANT SAFETY INFORMATION

6.1 Fire prevention:



- It is permissible to place the unit on normally flammable surfaces. Suitable for mounting on normally flammable materials surfaces greater than 200°C with some combustion time lag.
- Minimum distance from the closest illuminable surface: 0,5 m. LED 
- Replace any blown or damaged fuses only with those of identical value (T 5A 250V). Refer to the wiring diagram if there is any doubt.
- Connect the unit 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 LED bar.
- The level of technology inherent in the KATANA requires the assistance of specialised personnel for all servicing. Please refer to an authorised DTS service centre.
- A good earth connection is essential for proper functioning of the unit.
- Never connect the unit without proper earth connection.
- The fixture should be located in places with a good air ventilation.

6.3 Safety:



- Risk Group 2 product according to EN 62471.  Risk Group 2
- CAUTION. Do not look directly into the light output. May be harmful to the eyes and skin.

- Do not stare at the operating light source.



- The luminaire should be positioned so that prolonged staring into the luminaire at a distance closer than 28,49m is not expected.
- The light source contained in this luminaire shall only be replaced by the manufacturer or his service agent or a similar qualified person.
- The unit is not for household use and must be installed by a qualified electrician or experienced person.
- The LED bar 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 50°C. Never handle the unit until at least 5 minutes have elapsed since the LED bar was turned off.
- Never install the fixture in an enclosed area lacking sufficient air flow. The ambient temperature should not exceed 40°C.



6.4 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 IP 20.

6.5 Waste Electrical and Electronic equipment (WEEE) directive:



-The machine, accessories and packaging should be sorted for environmental-friendly Recycling.

For EC countries: according to the European Directive 2012/19/EC for Waste Electrical and Electronic Equipment and its implementation into national right, luminaires that are no longer usable must be collected separately and disposed of in an environmentally correct manner.

7- VOLTAGE AND FREQUENCY

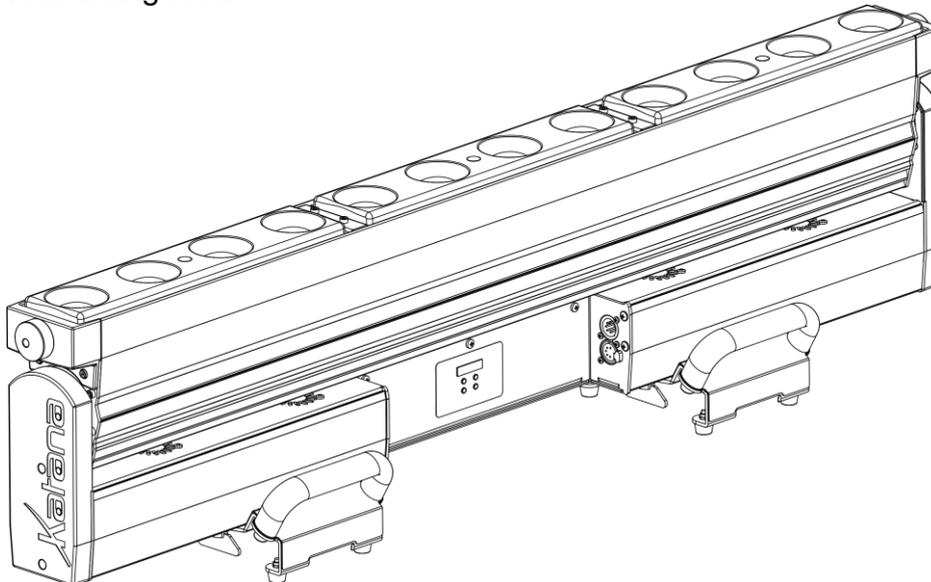
KATANA operates at 100-240Vac 50-60 Hz.

8- INSTALLATION

The unit is suitable for dry locations only.

KATANA may be either floor or ceiling mounted.

For floor mounting installations, KATANA is supplied with 2 brackets on the base with rubber mounting feet.



For ceiling mounted installations, we recommend 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.

Four 1/4 turn Fast Locks connections placed in the base of the unit allow to hang the KATANA by using the two Omega brackets (provided in the box) in conjunction with fixing clamps for truss (clamps are not included into the unit box).

The Omega brackets can be installed on the unit even without remove the brackets for ground installation fixed on the base of the unit.

8.1- Safety cable



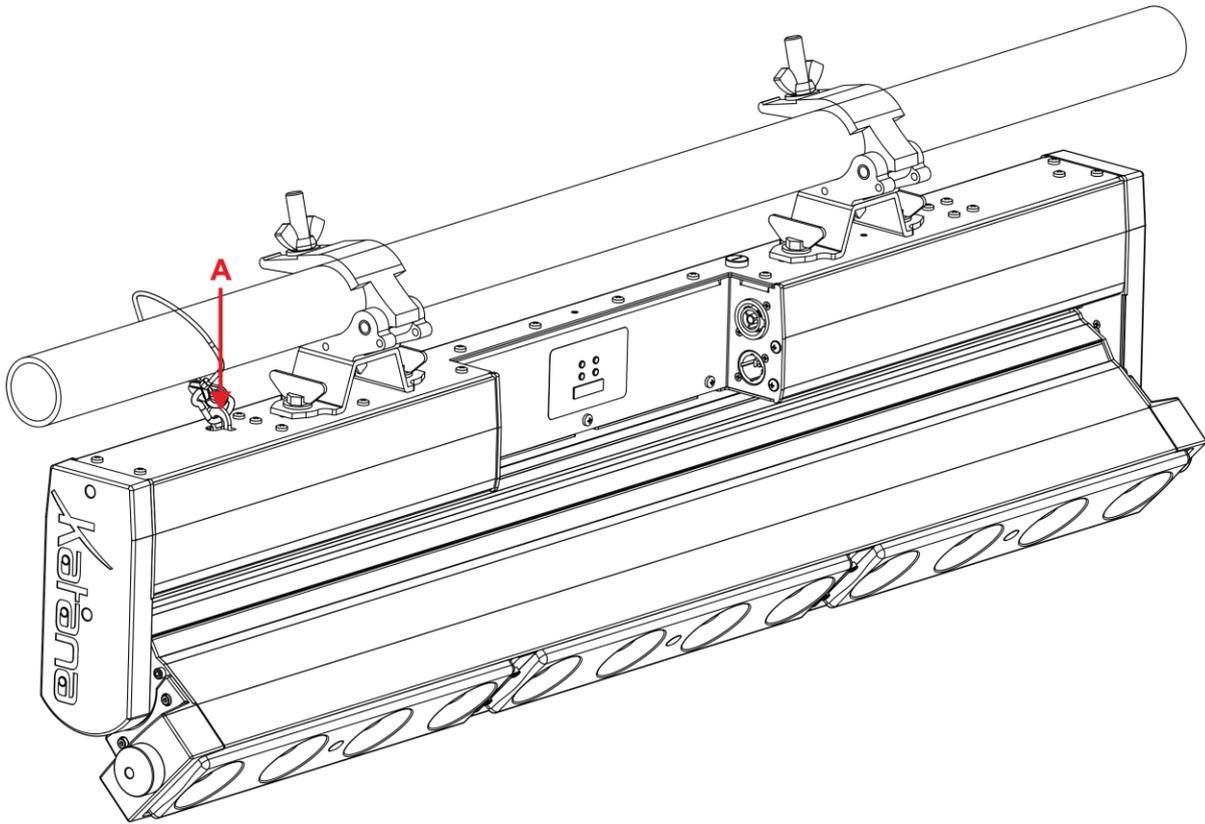
A safety cable must be securely fixed to the KATANA and to the suspension truss in order to avoid the fixture accidentally falling should the main fixing point fail.

Make sure that the safety cable can bear the weight of the entire unit.

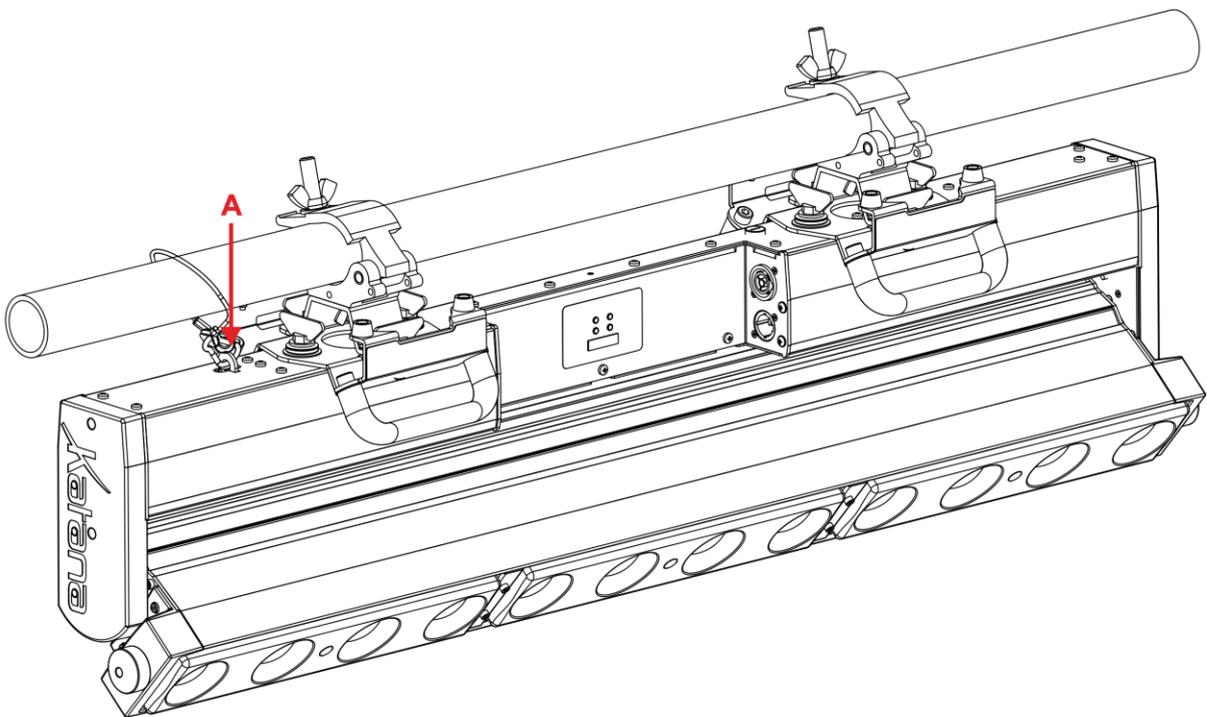
A suitable safety cable (code 0521A010) is available on demand.

You may attach the safety cable to the attachment point (A) located on the base of the fixture, as showed in the picture.

1) PRODUCT CEILING MOUNTED WITHOUT BRACKETS FOR GROUND INSTALLATION ON BOARD



2) PRODUCT CEILING MOUNTED WITH BRACKETS FOR GROUND INSTALLATION ON BOARD



8.2 Protection against liquids

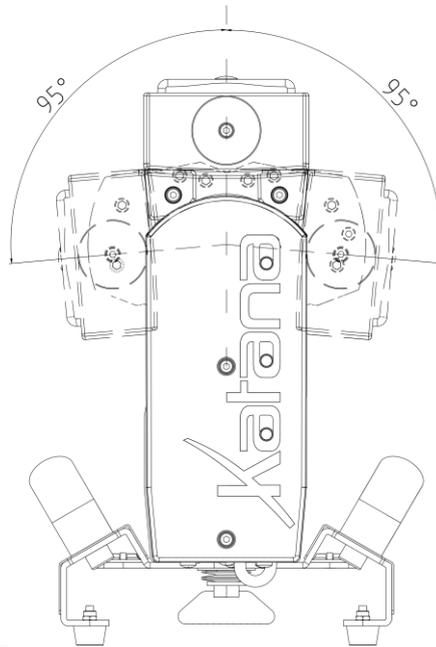


The projector contains electric and electronic components which should under no circumstances come into contact with oil, water or any other liquid. The proper unit functioning would be compromised should this occur.

8.3- Movement

Tilt $\pm 95^\circ$.

Do not place any obstructions in the path of the LED bar's movement.



8.4- Risk of fire

Each fixture produces heat and must be installed in a well-ventilated place. It is permissible to place the unit on normally flammable materials surfaces. Suitable for mounting on normally flammable materials surfaces greater than 200°C with some combustion time lag.

Minimum distance from the object being illuminated is 0,5 m. LED $\left(0,5 \text{ m} \right)$



8.5- Forced ventilation

You will note, on inspection, that the unit features various air inlets and cooling fans. 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.

8.6- Ambient temperature

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

9- MAINS CONNECTION

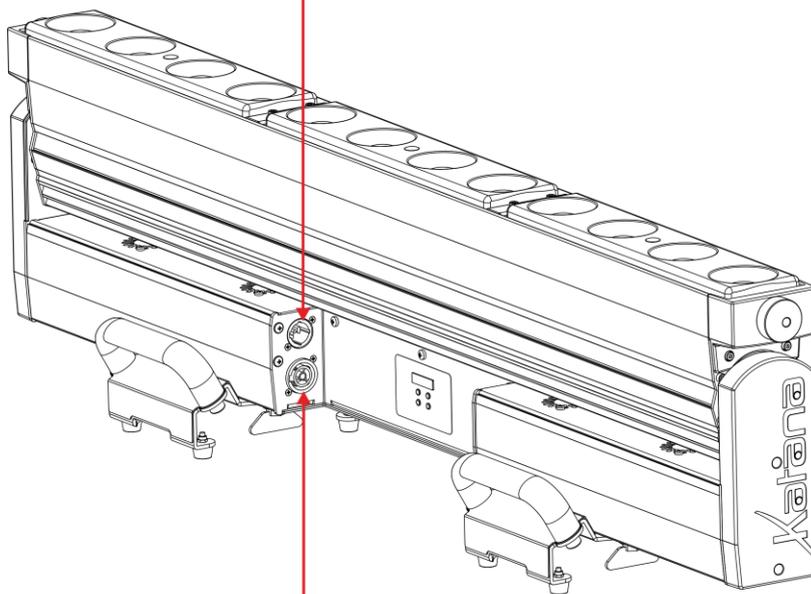
KATANA operates at 100-240Vac 50-60 Hz.

Prior to connecting the unit to your mains supply, ensure that the model in your possession correctly matches the mains supply available.

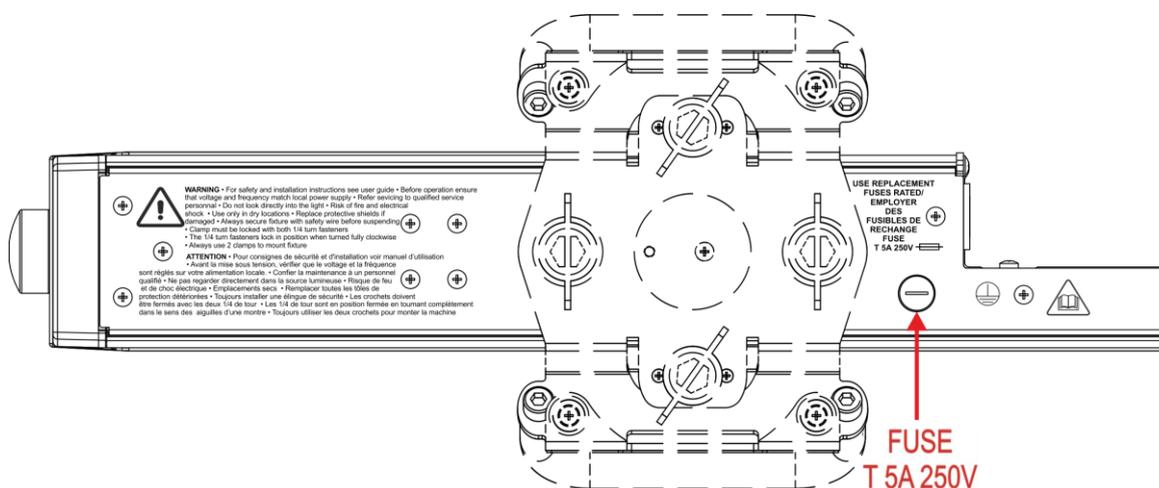
For connection purposes, ensure that your plug is capable of supporting 2 amps at 230Vac, or 4 amps at 90Vac.

Strict adherence to regulatory norms is strongly recommended.

MAINS AC INPUT
100-240Vac 50-60 Hz
 (PowerCon TRUE1 male panel connector)



MAINS AC OUTPUT
100-240Vac 50-60 Hz (16A Max)
 Max 10 KATANA units @ 230Vac
 Max 5 KATANA units @ 120Vac
 (PowerCon TRUE1 female panel connector)



9.1- Protection



The use of a thermal magnetic circuit breaker is recommended for each KATANA.

10- DMX SIGNAL CONNECTION

KATANA operates using the digital DMX 512 (1990) signal.

Connection between the mixer and the LED bar or between LED bars must be carried out using a two pair screened \varnothing 0.5 mm cable and a XLR 5 pins connector.

Ensure that the conductors do not touch each other.

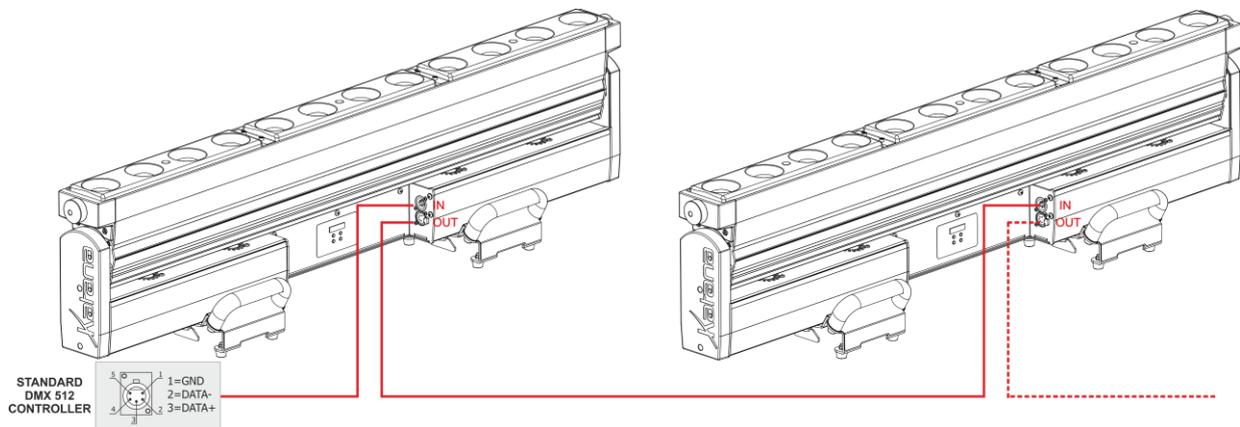
Do not connect the cable ground to the XLR chassy.

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:

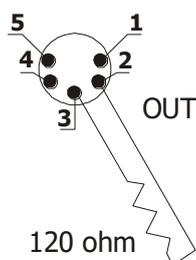
- DMX signal not present
- DMX address not valid
- DMX reception problem



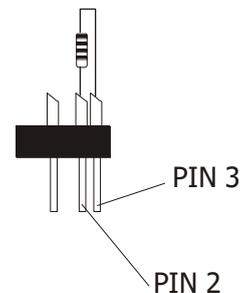
For Installations where long distance DMX cable connections are needed, we suggest to use a DMX terminator.

The DMX terminator is a male XLR 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 XLR CONNECTOR AND PLUG IT INTO THE DMX OUT PANEL CONNECTOR OF THE LAST UNIT CONNECTED TO THE DMX LINE



10.1-DMX Addresses

KATANA can be controlled with 24 DMX channels, 16 DMX channels or 64 DMX channels.

In order to use the unit in 24 DMX channels (default), set the following addresses on the mixer:

Projector 1	A001	
Projector 2	A025	If you want to select the next projector, just add "24"
Projector 3	A049	
.....	A....	
projector 6	A121	

10.2-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.

11- FIRMWARE UPDATING

Attention:

This procedure require a base knowledge of computer applications.

Please refer to an authorised DTS service centre.

To update the software version of the KATANA you need:

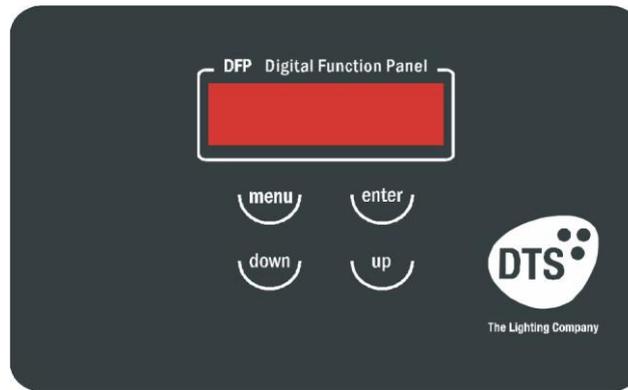
- DTS RED BOX interface (DTS Code: 03.LA.008);
- USB-DMX Driver for the DTS RED BOX interface;
- "DTS Firmware upgrade utility" program installed on your PC;
- Latest firmware available for KATANA unit.

Updating the software version.

Please follow the procedure below to perform the update:

1. Install the DTS RED BOX USB-DMX driver on the PC you will use to update the unit software.
2. Connect the DTS RED BOX interface to the PC by using a USB cable.
3. Connect the DTS RED BOX interface to the fixture by using a DMX cable.
4. Load the new firmware into the unit by using "DTS Firmware upgrade utility" program.

12- DISPLAY FUNCTIONS



The KATANA's 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 DTS 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.

Software version 2.17

	 		 		 		
DISPLAY POSITION: Reverses display's reading depending on the mounting position: AA = On the ground (default) VV = Suspended							
				 			
DISPLAY STAND-BY: To turn off the display or leave it always on. OFF = Display stand-by disabled (default) ON = Display goes off after 30 seconds							

DMX MODE

PERSONALITY

CHASE: 24 DMX channels (default).
This mode allows to combine pixel chase on a foreground level with pixels on a background level.

EXTENDED: 64 DMX channels.
This menu allows to control pixel to pixel.
STANDARD: 16 DMX channels.

DIMMER DELAY

This menu allows to select the delay time (in seconds) for the MASTER DIMMER channel reaction to DMX Dimming command.
Range = OFF / 0.1 - 2.0 sec.
Default = OFF



LED

LED SET**RGBW MIN / MAX VALUES**

This menu allows to select the Minimum / Maximum levels for Red, Green, Blue and White.

SMOOTH LEVEL

This menu allows to select the reaction time (in milliseconds) for RED, GREEN, BLUE, WHITE, and DIMMER channels response to DMX Dimming command.

1 = Fast reaction time
20 = Slow reaction time
Range = OFF / 1 - 20 ms
Default = OFF

GAMMA CORRECTION

This menu allows to select between Linear current output or Quadratic current output for LEDs.
Linear = Linear current output.
Quadratic = Linear light output.
Default = Quadratic

OUTPUT FREQUENCY

This menu allows to adjust the PWM frequency value (Hz) in order to reduce flickering in the process of your camera recordings.
Range = 610 Hz – 20 KHz
Default = 610 Hz

BOOST

This menu allows to increase the LED's current from 70% to 100%.
Default = ON



rMin



0



rMAX



100



GMin



0



GMAX



100



bMin



0



bMAX



100



uMin



0



uMAX



100



SNTK



4



COMP



Line



QUAD



54nc



610



bst



On



OFF





AUTOMATIC MODE

Automatic demo game without DMX controller

STEP 01/16

Chase with 16 steps previously created in REC MODE.

Speed time, Wait time, Dimmer, Tilt and Zoom values selectable by user.

PERSONAL COLOURS

Sixteen customizable Colour Macros. RGBW, Dimmer, Shutter, Tilt and Zoom values selectable by user.

RAINBOW

Rainbow colours effect. Speed time, Dimmer, Shutter, Tilt and Zoom values selectable by user.

FIXED COLOURS

Sixteen Colour Macros as on "MACRO" channel. Dimmer, Shutter, Tilt and Zoom values selectable by user.

WHITE MACROS

Sixteen macros for White color from 2700K to 8000K. Dimmer, Shutter, Tilt and Zoom values selectable by user.

AUTO	SURE	CHPr	SPEED	10
			WAIT	10
			DIMM	255
			TILT	128
			ZOOM	0

CP01	red	120
CP02	GREEN	255
CP 16	BLUE	104
	WHITE	104
	DIMM	255
	SHUT	255
	TILT	128
	ZOOM	0

rain	SPEED	00 10
	DIMM	255
	SHUT	255
	TILT	128
	ZOOM	0

CU01	DIMM	255
CU02	SHUT	255
CU 16	TILT	128
	ZOOM	0

UH01	DIMM	255
UH02	SHUT	255
UH 16	TILT	128
	ZOOM	0

ESC

SLAU **SUR-E** **tilt** **128**
2000 **0**
ESC

SLAVE MODE SETTING

This menu allows to set KATANA as slave unit.

EMER **SEL** **On** **OFF**
whit **01** **16**
dinn **255**
tilt **128**
2000 **0**

EMERGENCY

Emergency operating mode. By setting Emergency mode, it will be possible to select one of the 16 pre-programmed WHITE cues that will then ran if DMX signal is missing or not available. Useful for Emergency EXIT illumination on public areas. Dimmer level, Tilt and Zoom values selectable by user (not yet implemented). Default = Off

DFSE **SUR-E**

DEFAULT SETTINGS

To restore default settings

TEMP **LED1** **LED2**
LED12
brd1 **brd2**
brd3

TEMPERATURE

LEDs and LED Driver boards temperature monitoring

SUPV **48.1**

SUPPLY VOLTAGE

Power supply's output voltage monitoring

TIME **red** **GrEE**
BLUE
whit
Unit

TIME

This menu shows the total unit life time and the RGBW LEDs life time.



SYSTEM

SYSt



tInU



norN

**TILT INVERSION**

This menu allows to set the Tilt movement. Normal or Reversed.
Default = Normal.



tSPd



S

**TILT SPEED**

Tilt Speed control (1-5)
Default = 5



2SPd



5



5tUD



0n

**ZOOM SPEED**

Zoom speed control (1-5)
Default = 5

OFF



FAn



100

**STUDIO MODE**

This menu allows to decrease the speed of the zoom motors to have a unit low noise operation.
ON = Silent operation
OFF = Zoom motor maximum speed (default)



rdNH



EnAb



dISr



nou

**FAN MAX SPEED**

This menu' allows to select the head fan speed.
50% (12V) - 100% (24V)
Default = 100%

RESET BY DMX

This menu allows to enable / disable the Motors reset control (Tilt and Zoom) via DMX.
Enabled: Motors reset enabled via DMX (Default)
Disabled: Motors reset disabled via DMX
Now: Instant motors reset.



SOFTWARE

SOFT



noT0



v.1.05

Motors board (Tilt and Zoom) and LED driver boards software version

LEd1



v.2.00

LEd2

LEd2

13- PERIODIC CLEANING

Front lenses Glass

The dust can reduce the luminous output substantially.

Regularly clean the lenses using a soft cotton cloth, dampened with a specialist glasses cleaning solution.

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.

14- PERIODIC CONTROLS



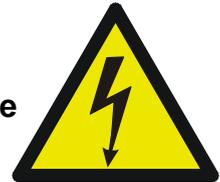
Mechanical parts

Periodically check all mechanical parts and the gaskets, replacing them if necessary.

Electrical components

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

Attention: Disconnect mains power prior to removing the projector housing.



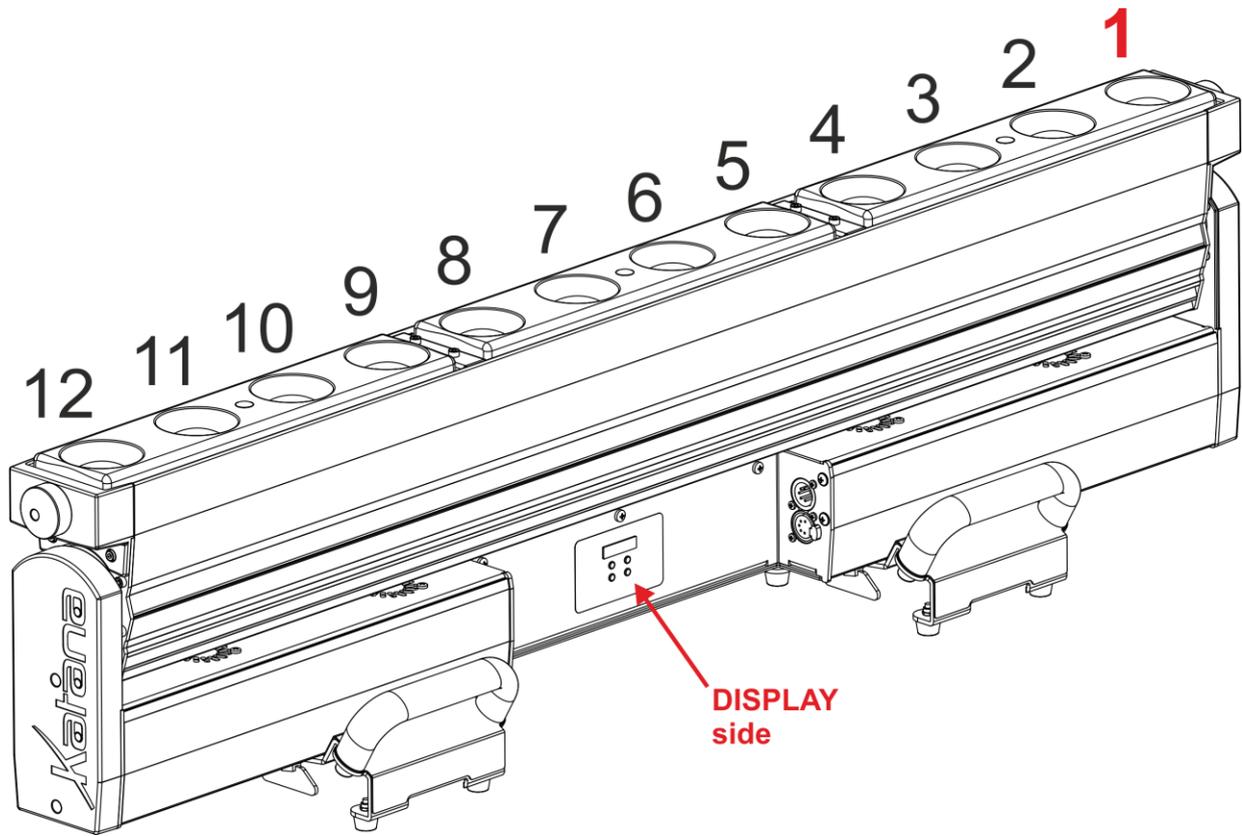
Fuse replacement

Locate the fuse, which protect the electronics, in the base of the KATANA. Using a multimeter, test the condition of the fuse, replacing it with one of equivalent type (T 5A 250V) if necessary.

Attention: Disconnect mains power prior to removing the projector housing.



15- LEDs SEQUENCE FOR PIXEL TO PIXEL CONTROL



16- DMX PROTOCOL**“EXTENDED” mode: 64 DMX channels**

1	RED DIMMER	60	WHITE 11
2	GREEN DIMMER	61	RED 12
3	BLUE DIMMER	62	GREEN 12
4	WHITE DIMMER	63	BLUE 12
5	SHUTTER	64	WHITE 12
6	DIMMER		
7	DIMMER FINE		
8	LINEAR CTO		
9	MACRO COLOR		
10	TILT		
11	TILT FINE		
12	TILT SPEED		
13	SERVICE		
14	FUNCTIONS		
15	ZOOM		
16	RESET		
17	RED1		
18	GREEN 1		
19	BLUE 1		
20	WHITE 1		
21	RED 2		
22	GREEN 2		
23	BLUE 2		
24	WHITE 2		
25	RED 3		
26	GREEN 3		
27	BLUE 3		
28	WHITE 3		
29	RED 4		
30	GREEN 4		
31	BLUE 4		
32	WHITE 4		
33	RED 5		
34	GREEN 5		
35	BLUE 5		
36	WHITE 5		
37	RED 6		
38	GREEN 6		
39	BLUE 6		
40	WHITE 6		
41	RED 7		
42	GREEN 7		
43	BLUE 7		
44	WHITE 7		
45	RED 8		
46	GREEN 8		
47	BLUE 8		
48	WHITE 8		
49	RED 9		
50	GREEN 9		
51	BLUE 9		
52	WHITE 9		
53	RED 10		
54	GREEN 10		
55	BLUE 10		
56	WHITE 10		
57	RED 11		
58	GREEN 11		
59	BLUE 11		

<i>Ch</i>	<i>Name</i>	<i>DMX levels</i>	
1	RED DIMMER	0..255	RED Master dimmer
2	GREEN DIMMER	0..255	GREEN Master dimmer
3	BLUE DIMMER	0..255	BLUE Master dimmer
4	WHITE DIMMER	0..255	WHITE Master dimmer
5	SHUTTER	0..9	Black-out
		10..19	Open
		20..29	Black-out
		30..119	Strobe (from 3,27 s to 30 ms)
		120..149	Pulse up (from 42,6 s to 120 ms)
		150..179	Pulse down (from 42,6 s to 120 ms)
		180..204	Random strobe
		205..229	Full independent random strobe
		230..255	Open
6	DIMMER	0..255	Proportional master dimmer MSB
7	DIMMER FINE	0..255	Proportional master dimmer LSB
8	LINEAR CTO	0..10	No function
		11..255	Linear control temperature correction (whites from 2700K to 8000K)
9	MACRO COLOR	0..14	No function
		15..24	Fix.Col.1: RED - RGBW=(255,0,0,0)
		25..34	Fix.Col.2: RGBW=(255,85,0,0)
		35..44	Fix.Col.3: RGBW=(255,170,0,0)
		45..54	Fix.Col.4: YELLOW - RGBW=(255,255,0,0)
		55..64	Fix.Col.5: RGBW=(170,255,0,0)
		65..74	Fix.Col.6: RGBW=(85,255,0,0)
		75..84	Fix.Col.7: GREEN - RGBW=(0,255,0,0)
		85..94	Fix.Col.8: RGBW=(0,255,85,0)
		95..104	Fix.Col.9: RGBW=(0,255,170,0)
		105..114	Fix.Col.10: CYAN - RGBW=(0,255,255,0)
		115..124	Fix.Col.11: RGBW=(0,170,255,0)
		125..134	Fix.Col.12: RGBW=(0,85,255,0)
		135..144	Fix.Col.13: BLUE - RGBW=(0,0,255,0)
		145..154	Fix.Col.14: RGBW=(85,0,255,0)
		155..164	Fix.Col.15: RGBW=(170,0,255,0)
		165..174	Fix.Col.16: MAGENTA - RGBW=(255,0,255,0)
		175..184	Rainbow: a new colour every 6 s (RED, YELLOW, GREEN, CYAN, BLUE, MAGENTA, WHITE)
		185..194	Rainbow: a new colour every 15 s (RED, YELLOW, GREEN, CYAN, BLUE, MAGENTA, WHITE)
		195..204	Rainbow: a new colour every 30 s (RED, YELLOW, GREEN, CYAN, BLUE, MAGENTA, WHITE)
		205..214	Rainbow: a new colour every 45 s (RED, YELLOW, GREEN, CYAN, BLUE, MAGENTA, WHITE)
		215..224	Rainbow: a new colour every 60 s (RED, YELLOW, GREEN, CYAN, BLUE, MAGENTA, WHITE)
		225..234	Rainbow: a new colour every 120 s (RED, YELLOW, GREEN, CYAN, BLUE, MAGENTA, WHITE)
		235..244	Rainbow: a new colour every 150 s (RED, YELLOW, GREEN, CYAN, BLUE, MAGENTA, WHITE)
		245..255	Rainbow: a new colour every 180 s (RED, YELLOW, GREEN, CYAN, BLUE, MAGENTA, WHITE)
10	TILT		TILT MSB
11	TILT FINE		TILT LSB
12	TILT SPEED	0..10	Standard
		11..25	Maximum speed
		26..127	From maximum to minimum speed
		128..247	Variable reaction to DMX signal (fast to slow)
		248..255	Slow reaction time to DMX signal
13	SERVICE	0..10	No function
		11..244	reserved
		245..255	Activating "FUNCTIONS" channel

<i>Ch</i>	<i>Name</i>	<i>DMX levels</i>	
14	FUNCTIONS	0..14	No function
	Activated by channel SERVICE at range 245..255 and staying on desired option for 5 seconds	15..24	SMOOTH OFF (DEFAULT)
		25..26	SMOOTH 1
		27..28	SMOOTH 2
		29..30	SMOOTH 3
		31..32	SMOOTH 4
		33..34	SMOOTH 5
		35..36	SMOOTH 6
		37..38	SMOOTH 7
		39..40	SMOOTH 8
		41..42	SMOOTH 9
		43..44	SMOOTH 10
		45..46	SMOOTH 11
		47..48	SMOOTH 12
		49..50	SMOOTH 13
		51..52	SMOOTH 14
		53..54	SMOOTH 15
		55..56	SMOOTH 16
		57..58	SMOOTH 17
		59..60	SMOOTH 18
		61..62	SMOOTH 19
		63..64	SMOOTH 20
		65..74	GAMMA CORRECTION QUADRATIC (DEFAULT)
		75..84	GAMMA CORRECTION LINEAR
		85..104	OUTPUT FREQUENCY 610 Hz (DEFAULT)
		105	OUTPUT FREQUENCY 800 Hz
		106	OUTPUT FREQUENCY 1000 Hz
		107	OUTPUT FREQUENCY 1500 Hz
		108	OUTPUT FREQUENCY 2000 Hz
		109	OUTPUT FREQUENCY 2500 Hz
		110	OUTPUT FREQUENCY 3000 Hz
		111	OUTPUT FREQUENCY 3500 Hz
		112	OUTPUT FREQUENCY 4000 Hz
		113	OUTPUT FREQUENCY 4500 Hz
		114	OUTPUT FREQUENCY 5000 Hz
		115	OUTPUT FREQUENCY 5500 Hz
		116	OUTPUT FREQUENCY 6000 Hz
		117	OUTPUT FREQUENCY 6500 Hz
		118	OUTPUT FREQUENCY 7000 Hz
		119	OUTPUT FREQUENCY 7500 Hz
		120	OUTPUT FREQUENCY 8000 Hz
		121	OUTPUT FREQUENCY 8500 Hz
		122	OUTPUT FREQUENCY 9000 Hz
		123	OUTPUT FREQUENCY 9500 Hz
		124	OUTPUT FREQUENCY 10000 Hz
		125	OUTPUT FREQUENCY 11000 Hz
		126	OUTPUT FREQUENCY 12000 Hz
		127	OUTPUT FREQUENCY 13000 Hz
		128	OUTPUT FREQUENCY 14000 Hz
		129	OUTPUT FREQUENCY 15000 Hz
		130	OUTPUT FREQUENCY 16000 Hz
		131	OUTPUT FREQUENCY 17000 Hz
		132	OUTPUT FREQUENCY 18000 Hz
		133	OUTPUT FREQUENCY 19000 Hz
		134	OUTPUT FREQUENCY 20000 Hz
		135..144	BOOST ON (DEFAULT)
		145..154	BOOST OFF
		155..164	RESERVED

<i>Ch</i>	<i>Name</i>	<i>DMX levels</i>	
		165..174	RESERVED
		175..184	RESERVED
		185..194	RESERVED
		195..204	RESERVED
		205..214	TILT NORMAL (DEFAULT)
		215..224	TILT REVERSE
		225..234	RESERVED
		235..244	FAN SPEED STUDIO MODE
		245..255	FAN SPEED LIVE MODE (DEFAULT)
15	ZOOM	0..255	Linear zoom from narrow to wide
16	RESET	0..15	No function
		16..75	PAN TILT reset
		76..239	ZOOM reset
		240..255	TOTAL Unit reset
17	RED1	0..255	Proportional colour
18	GREEN1	0..255	Proportional colour
19	BLUE1	0..255	Proportional colour
20	WHITE1	0..255	Proportional colour
21	RED2	0..255	Proportional colour
22	GREEN2	0..255	Proportional colour
23	BLUE2	0..255	Proportional colour
24	WHITE2	0..255	Proportional colour
25	RED3	0..255	Proportional colour
26	GREEN3	0..255	Proportional colour
27	BLUE3	0..255	Proportional colour
28	WHITE3	0..255	Proportional colour
29	RED4	0..255	Proportional colour
30	GREEN4	0..255	Proportional colour
31	BLUE4	0..255	Proportional colour
32	WHITE4	0..255	Proportional colour
33	RED5	0..255	Proportional colour
34	GREEN5	0..255	Proportional colour
35	BLUE5	0..255	Proportional colour
36	WHITE5	0..255	Proportional colour
37	RED6	0..255	Proportional colour
38	GREEN6	0..255	Proportional colour
39	BLUE6	0..255	Proportional colour
40	WHITE6	0..255	Proportional colour
41	RED7	0..255	Proportional colour
42	GREEN7	0..255	Proportional colour
43	BLUE7	0..255	Proportional colour
44	WHITE7	0..255	Proportional colour
45	RED8	0..255	Proportional colour
46	GREEN8	0..255	Proportional colour
47	BLUE8	0..255	Proportional colour
48	WHITE8	0..255	Proportional colour
49	RED9	0..255	Proportional colour
50	GREEN9	0..255	Proportional colour
51	BLUE9	0..255	Proportional colour
52	WHITE9	0..255	Proportional colour
53	RED10	0..255	Proportional colour
54	GREEN10	0..255	Proportional colour
55	BLUE10	0..255	Proportional colour
56	WHITE10	0..255	Proportional colour
57	RED11	0..255	Proportional colour
58	GREEN11	0..255	Proportional colour
59	BLUE11	0..255	Proportional colour
60	WHITE11	0..255	Proportional colour

<i>Ch</i>	<i>Name</i>	<i>DMX levels</i>	
61	RED12	0..255	Proportional colour
62	GREEN12	0..255	Proportional colour
63	BLUE12	0..255	Proportional colour
64	WHITE12	0..255	Proportional colour

16- DMX PROTOCOL

“STANDARD” mode: 16 DMX channels

1	RED DIMMER
2	GREEN DIMMER
3	BLUE DIMMER
4	WHITE DIMMER
5	SHUTTER
6	DIMMER
7	DIMMER FINE
8	LINEAR CTO
9	MACRO COLOR
10	TILT
11	TILT FINE
12	TILT SPEED
13	SERVICE
14	FUNCTIONS
15	ZOOM
16	RESET

Ch	Name	DMX levels	
1	RED DIMMER	0..255	RED Master dimmer
2	GREEN DIMMER	0..255	GREEN Master dimmer
3	BLUE DIMMER	0..255	BLUE Master dimmer
4	WHITE DIMMER	0..255	WHITE Master dimmer
5	SHUTTER	0..9	Black-out
		10..19	Open
		20..29	Black-out
		30..119	Strobe (from 3,27 s to 30 ms)
		120..149	Pulse up (from 42,6 s to 120 ms)
		150..179	Pulse down (from 42,6 s to 120 ms)
		180..204	Random strobe
		205..229	Full independent random strobe
		230..255	Open
6	DIMMER	0..255	Proportional master dimmer MSB
7	DIMMER FINE	0..255	Proportional master dimmer LSB
8	LINEAR CTO	0..10	No function
		11..255	Linear control temperature correction (whites from 2700K to 8000K)
9	MACRO COLOR	0..14	No function
		15..24	Fix.Col.1: RED - RGBW=(255,0,0,0)
		25..34	Fix.Col.2: RGBW=(255,85,0,0)
		35..44	Fix.Col.3: RGBW=(255,170,0,0)
		45..54	Fix.Col.4: YELLOW - RGBW=(255,255,0,0)
		55..64	Fix.Col.5: RGBW=(170,255,0,0)
		65..74	Fix.Col.6: RGBW=(85,255,0,0)
		75..84	Fix.Col.7: GREEN - RGBW=(0,255,0,0)
		85..94	Fix.Col.8: RGBW=(0,255,85,0)
		95..104	Fix.Col.9: RGBW=(0,255,170,0)
		105..114	Fix.Col.10: CYAN - RGBW=(0,255,255,0)
		115..124	Fix.Col.11: RGBW=(0,170,255,0)
		125..134	Fix.Col.12: RGBW=(0,85,255,0)
		135..144	Fix.Col.13: BLUE - RGBW=(0,0,255,0)
		145..154	Fix.Col.14: RGBW=(85,0,255,0)
		155..164	Fix.Col.15: RGBW=(170,0,255,0)
		165..174	Fix.Col.16: MAGENTA - RGBW=(255,0,255,0)
		175..184	Rainbow: a new colour every 6 s (RED, YELLOW, GREEN, CYAN, BLUE, MAGENTA, WHITE)
		185..194	Rainbow: a new colour every 15 s (RED, YELLOW, GREEN, CYAN, BLUE, MAGENTA, WHITE)
		195..204	Rainbow: a new colour every 30 s (RED, YELLOW, GREEN, CYAN, BLUE, MAGENTA, WHITE)

<i>Ch</i>	<i>Name</i>	<i>DMX levels</i>	
		205..214	Rainbow: a new colour every 45 s (RED, YELLOW, GREEN, CYAN, BLUE, MAGENTA, WHITE)
		215..224	Rainbow: a new colour every 60 s (RED, YELLOW, GREEN, CYAN, BLUE, MAGENTA, WHITE)
		225..234	Rainbow: a new colour every 120 s (RED, YELLOW, GREEN, CYAN, BLUE, MAGENTA, WHITE)
		235..244	Rainbow: a new colour every 150 s (RED, YELLOW, GREEN, CYAN, BLUE, MAGENTA, WHITE)
		245..255	Rainbow: a new colour every 180 s (RED, YELLOW, GREEN, CYAN, BLUE, MAGENTA, WHITE)
10	TILT		TILT MSB
11	TILT FINE		TILT LSB
12	TILT SPEED	0..10	Standard
		11..25	Maximum speed
		26..127	From maximum to minimum speed
		128..247	Variable reaction to DMX signal (fast to slow)
		248..255	Slow reaction time to DMX signal
13	SERVICE	0..10	No function
		11..244	reserved
		245..255	Activating "FUNCTIONS" channel
14	FUNCTIONS	0..14	No function
	Activated by channel SERVICE at range 245..255 and staying on desired option for 5 seconds	15..24	SMOOTH OFF (DEFAULT)
		25..26	SMOOTH 1
		27..28	SMOOTH 2
		29..30	SMOOTH 3
		31..32	SMOOTH 4
		33..34	SMOOTH 5
		35..36	SMOOTH 6
		37..38	SMOOTH 7
		39..40	SMOOTH 8
		41..42	SMOOTH 9
		43..44	SMOOTH 10
		45..46	SMOOTH 11
		47..48	SMOOTH 12
		49..50	SMOOTH 13
		51..52	SMOOTH 14
		53..54	SMOOTH 15
		55..56	SMOOTH 16
		57..58	SMOOTH 17
		59..60	SMOOTH 18
		61..62	SMOOTH 19
		63..64	SMOOTH 20
		65..74	GAMMA CORRECTION QUADRATIC (DEFAULT)
		75..84	GAMMA CORRECTION LINEAR
		85..104	OUTPUT FREQUENCY 610 Hz (DEFAULT)
		105	OUTPUT FREQUENCY 800 Hz
		106	OUTPUT FREQUENCY 1000 Hz
		107	OUTPUT FREQUENCY 1500 Hz
		108	OUTPUT FREQUENCY 2000 Hz
		109	OUTPUT FREQUENCY 2500 Hz
		110	OUTPUT FREQUENCY 3000 Hz
		111	OUTPUT FREQUENCY 3500 Hz
		112	OUTPUT FREQUENCY 4000 Hz
		113	OUTPUT FREQUENCY 4500 Hz
		114	OUTPUT FREQUENCY 5000 Hz
		115	OUTPUT FREQUENCY 5500 Hz
		116	OUTPUT FREQUENCY 6000 Hz
		117	OUTPUT FREQUENCY 6500 Hz
		118	OUTPUT FREQUENCY 7000 Hz
		119	OUTPUT FREQUENCY 7500 Hz
		120	OUTPUT FREQUENCY 8000 Hz

<i>Ch</i>	<i>Name</i>	<i>DMX levels</i>	
		121	OUTPUT FREQUENCY 8500 Hz
		122	OUTPUT FREQUENCY 9000 Hz
		123	OUTPUT FREQUENCY 9500 Hz
		124	OUTPUT FREQUENCY 10000 Hz
		125	OUTPUT FREQUENCY 11000 Hz
		126	OUTPUT FREQUENCY 12000 Hz
		127	OUTPUT FREQUENCY 13000 Hz
		128	OUTPUT FREQUENCY 14000 Hz
		129	OUTPUT FREQUENCY 15000 Hz
		130	OUTPUT FREQUENCY 16000 Hz
		131	OUTPUT FREQUENCY 17000 Hz
		132	OUTPUT FREQUENCY 18000 Hz
		133	OUTPUT FREQUENCY 19000 Hz
		134	OUTPUT FREQUENCY 20000 Hz
		135..144	BOOST ON (DEFAULT)
		145..154	BOOST OFF
		155..164	RESERVED
		165..174	RESERVED
		175..184	RESERVED
		185..194	RESERVED
		195..204	RESERVED
		205..214	TILT NORMAL (DEFAULT)
		215..224	TILT REVERSE
		225..234	RESERVED
		235..244	FAN SPEED STUDIO MODE
		245..255	FAN SPEED LIVE MODE (DEFAULT)
15	ZOOM	0..255	Linear zoom from narrow to wide
16	RESET	0..15	No function
		16..75	PAN TILT reset
		76..239	ZOOM reset
		240..255	TOTAL Unit reset

16- DMX PROTOCOL**“CHASE” mode: 24 DMX channels (default)**

1	RED DIMMER
2	GREEN DIMMER
3	BLUE DIMMER
4	WHITE DIMMER
5	SHUTTER
6	DIMMER
7	DIMMER FINE
8	LINEAR CTO
9	MACRO COLOR
10	TILT
11	TILT FINE
12	TILT SPEED
13	SERVICE
14	FUNCTIONS
15	ZOOM
16	RESET
17	CHASE 1 SELECTION
18	CHASE 1 COLOUR
19	CHASE 1 SIZE/SPEED
20	CHASE 1 DIMMER
21	CHASE 2 SELECTION
22	CHASE 2 COLOUR
23	CHASE 2 SIZE/SPEED
24	CHASE 2 DIMMER

<i>Ch</i>	<i>Name</i>	<i>DMX levels</i>	
1	RED DIMMER	0..255	RED Master dimmer
2	GREEN DIMMER	0..255	GREEN Master dimmer
3	BLUE DIMMER	0..255	BLUE Master dimmer
4	WHITE DIMMER	0..255	WHITE Master dimmer
5	SHUTTER	0..9	Black-out
		10..19	Open
		20..29	Black-out
		30..119	Strobe (from 3,27 s to 30 ms)
		120..149	Pulse up (from 42,6 s to 120 ms)
		150..179	Pulse down (from 42,6 s to 120 ms)
		180..204	Random strobe
		205..229	Full independent random strobe
		230..255	Open
6	DIMMER	0..255	Proportional master dimmer MSB
7	DIMMER FINE	0..255	Proportional master dimmer LSB
8	LINEAR CTO	0..10	No function
		11..255	Linear control temperature correction (whites from 2700K to 8000K)
9	MACRO COLOR	0..14	No function
		15..24	Fix.Col.1: RED - RGBW=(255,0,0,0)
		25..34	Fix.Col.2: RGBW=(255,85,0,0)
		35..44	Fix.Col.3: RGBW=(255,170,0,0)
		45..54	Fix.Col.4: YELLOW - RGBW=(255,255,0,0)
		55..64	Fix.Col.5: RGBW=(170,255,0,0)
		65..74	Fix.Col.6: RGBW=(85,255,0,0)
		75..84	Fix.Col.7: GREEN - RGBW=(0,255,0,0)
		85..94	Fix.Col.8: RGBW=(0,255,85,0)
		95..104	Fix.Col.9: RGBW=(0,255,170,0)
		105..114	Fix.Col.10: CYAN - RGBW=(0,255,255,0)

<i>Ch</i>	<i>Name</i>	<i>DMX levels</i>	
		115..124	Fix.Col.11: RGBW=(0,170,255,0)
		125..134	Fix.Col.12: RGBW=(0,85,255,0)
		135..144	Fix.Col.13: BLUE – RGBW(0,0,255,0)
		145..154	Fix.Col.14: RGBW=(85,0,255,0)
		155..164	Fix.Col.15: RGBW=(170,0,255,0)
		165..174	Fix.Col.16: MAGENTA – RGBW=(255,0,255,0)
		175..184	Rainbow: a new colour every 6 s (RED, YELLOW, GREEN, CYAN, BLUE, MAGENTA, WHITE)
		185..194	Rainbow: a new colour every 15 s (RED, YELLOW, GREEN, CYAN, BLUE, MAGENTA, WHITE)
		195..204	Rainbow: a new colour every 30 s (RED, YELLOW, GREEN, CYAN, BLUE, MAGENTA, WHITE)
		205..214	Rainbow: a new colour every 45 s (RED, YELLOW, GREEN, CYAN, BLUE, MAGENTA, WHITE)
		215..224	Rainbow: a new colour every 60 s (RED, YELLOW, GREEN, CYAN, BLUE, MAGENTA, WHITE)
		225..234	Rainbow: a new colour every 120 s (RED, YELLOW, GREEN, CYAN, BLUE, MAGENTA, WHITE)
		235..244	Rainbow: a new colour every 150 s (RED, YELLOW, GREEN, CYAN, BLUE, MAGENTA, WHITE)
		245..255	Rainbow: a new colour every 180 s (RED, YELLOW, GREEN, CYAN, BLUE, MAGENTA, WHITE)
10	TILT		TILT MSB
11	TILT FINE		TILT LSB
12	TILT SPEED	0..10	Standard
		11..25	Maximum speed
		26..127	From maximum to minimum speed
		128..247	Variable reaction to DMX signal (fast to slow)
		248..255	Slow reaction time to DMX signal
13	SERVICE	0..10	No function
		11..244	reserved
		245..255	Activating "FUNCTIONS" channel
14	FUNCTIONS	0..14	No function
	Activated by channel SERVICE at range 245..255 and staying on desired option for 5 seconds	15..24	SMOOTH OFF (DEFAULT)
		25..26	SMOOTH 1
		27..28	SMOOTH 2
		29..30	SMOOTH 3
		31..32	SMOOTH 4
		33..34	SMOOTH 5
		35..36	SMOOTH 6
		37..38	SMOOTH 7
		39..40	SMOOTH 8
		41..42	SMOOTH 9
		43..44	SMOOTH 10
		45..46	SMOOTH 11
		47..48	SMOOTH 12
		49..50	SMOOTH 13
		51..52	SMOOTH 14
		53..54	SMOOTH 15
		55..56	SMOOTH 16
		57..58	SMOOTH 17
		59..60	SMOOTH 18
		61..62	SMOOTH 19
	63..64	SMOOTH 20	
	65..74	GAMMA CORRECTION QUADRATIC (DEFAULT)	
	75..84	GAMMA CORRECTION LINEAR	
	85..104	OUTPUT FREQUENCY 610 Hz (DEFAULT)	
	105	OUTPUT FREQUENCY 800 Hz	
	106	OUTPUT FREQUENCY 1000 Hz	
	107	OUTPUT FREQUENCY 1500 Hz	
	108	OUTPUT FREQUENCY 2000 Hz	
	109	OUTPUT FREQUENCY 2500 Hz	
	110	OUTPUT FREQUENCY 3000 Hz	
	111	OUTPUT FREQUENCY 3500 Hz	
	112	OUTPUT FREQUENCY 4000 Hz	
	113	OUTPUT FREQUENCY 4500 Hz	

<i>Ch</i>	<i>Name</i>	<i>DMX levels</i>	
		114	OUTPUT FREQUENCY 5000 Hz
		115	OUTPUT FREQUENCY 5500 Hz
		116	OUTPUT FREQUENCY 6000 Hz
		117	OUTPUT FREQUENCY 6500 Hz
		118	OUTPUT FREQUENCY 7000 Hz
		119	OUTPUT FREQUENCY 7500 Hz
		120	OUTPUT FREQUENCY 8000 Hz
		121	OUTPUT FREQUENCY 8500 Hz
		122	OUTPUT FREQUENCY 9000 Hz
		123	OUTPUT FREQUENCY 9500 Hz
		124	OUTPUT FREQUENCY 10000 Hz
		125	OUTPUT FREQUENCY 11000 Hz
		126	OUTPUT FREQUENCY 12000 Hz
		127	OUTPUT FREQUENCY 13000 Hz
		128	OUTPUT FREQUENCY 14000 Hz
		129	OUTPUT FREQUENCY 15000 Hz
		130	OUTPUT FREQUENCY 16000 Hz
		131	OUTPUT FREQUENCY 17000 Hz
		132	OUTPUT FREQUENCY 18000 Hz
		133	OUTPUT FREQUENCY 19000 Hz
		134	OUTPUT FREQUENCY 20000 Hz
		135..144	BOOST ON (DEFAULT)
		145..154	BOOST OFF
		155..164	RESERVED
		165..174	RESERVED
		175..184	RESERVED
		185..194	RESERVED
		195..204	RESERVED
		205..214	TILT NORMAL (DEFAULT)
		215..224	TILT REVERSE
		225..234	RESERVED
		235..244	FAN SPEED STUDIO MODE
		245..255	FAN SPEED LIVE MODE (DEFAULT)
15	ZOOM	0..255	Linear zoom from narrow to wide
16	RESET	0..15	No function
		16..75	PAN TILT reset
		76..239	ZOOM reset
		240..255	TOTAL Unit reset
17	CHASE1 SELECT.	0..47	No Effect
		48..63	Background
		64..79	Hystogram Left
		80..95	Hystogram Right
		96..111	Hystogram Multicolour Left
		112..127	Hystogram Multicolour Right
		128..143	Continous Shift Right
		144..159	Continous Shift Left
		160..175	Wave Right
		176..191	Wave Left
		192..207	Random Strobe
		208..223	Random Strobe Random Colour
		224..239	Pulse
		240..255	Random Pick
18	CHASE1 COLOUR	0..255	Chase colour selection
19	CHASE1 SIZE/SPD	0..255	Chase speed size tuning
20	CHASE1 DIMMER	0..255	Chase Level

<i>Ch</i>	<i>Name</i>	<i>DMX levels</i>	
21	CHASE2 SELECT.	0..47	No Effect
		48..63	Background
		64..79	Hystogram Left
		80..95	Hystogram Right
		96..111	Hystogram Multicolour Left
		112..127	Hystogram Multicolour Right
		128..143	Continous Shift Right
		144..159	Continous Shift Left
		160..175	Wave Right
		176..191	Wave Left
		192..207	Random Strobo
		208..223	Random Strobo Random Colour
		224..239	Pulse
		240..255	Random Pick
22	CHASE2 COLOUR	0..255	Chase colour selection
23	CHASE2 SIZE/SPD	0..255	Chase speed size tuning
24	CHASE2 DIMMER	0..255	Chase Level

NOTES

NOTES

ISO 9001:2015

DTS quality system is
certified to the ISO
9001:2015 standard.



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