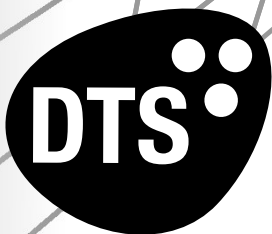


XM 1200 SPOT



The Lighting Company

User Manual Rel 1.1

GB

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INDEX:

1- TECHNICAL FEATURES	4
2- IMPORTANT SAFETY INFORMATION	5
2.1 Fire prevention	
2.2 Prevention of electric shock	
2.3 Protection against ultraviolet radiation	
2.4 Safety	
2.5 Level of protection against the penetration of solid and liquid matter	
3- MOUNTING THE LAMPS	6
3.1 Lamp alignment	
4- VOLTAGE AND FREQUENCY	7
5- INSTALLATION	7
5.1 Safety chain	
5.2 Protection against liquids	
5.3 Movement	
5.4 Risk of fire	
5.5 Forced ventilation	
5.6 Ambient temperature	
6- MAINS CONNECTION	8
6.1 Protection	
7- DMX SIGNAL CONNECTION	8
7.1 DMX Addresses	
7.2 Selecting the DMX address	
8- DISPLAY FUNCTIONS	11
9- ERROR MESSAGES	14
10- HIDDEN MENU	15
11- OPENING UP THE PROJECTOR HOUSING	17
12- REPLACING GOBOS	
13- PERIODIC CLEANING	18
13.1 Lenses and reflectors	
13.2 Fans and air passages	
13.3 Periodic controls	
14- CONTROL MOTORS CARD	19
15- DISPLAY CARD	21
16-PAN & TILT CARD	
17- LAMP ON-OFF CONTROL CARD	
18-CABLES RESEND CARD	
19- DMX PROTOCOL	22

1- TECHNICAL FEATURES

The XM 1200 Spot is fitted with a Philips MSR 1200/SA discharge lamp (GY22 lampholder base), with a colour temperature of 5,600 °K and a luminous flux of 96,000 Lumens.

Duration is 750 hours, with replacement recommended before 1000 hours

Other recommended lamps: Osram HTI 1200W/SE PP; GE Lighting CSR1200W SA

The unit incorporates:

Motorized Focus system

13°-31° motorized Zoom with auto-focus

Dimmer (emitted light is controlled by progressive and linear dimming).

Shutter (instantaneous shutter opening/closure)

Strobe: mechanical strobe effect (frequency variable from 0.86 flashes/sec to 6.6 flashes/sec).

Motorized iris

2 gobo wheels (6 indexable 16 bit gobos + open each)

CMY linear colour mixing system

Colour wheel (7 colours + open)

3 rotating prisms

Frost

Electronic or magnetic ballast

Pan: 540° in 5.6 seconds (8 or 16 bit) with auto repositioning system

Tilt: 270° in 4.3 seconds (8 or 16 bit) with auto repositioning system

USITT Standard DMX 512 input

4 -eight digit- LED display with 4 buttons

Power Supply: 190-245 V (50/60 Hz).

Power consumption: 1300 W.

Energy saving function is automatic when the fixture is blacked out.

The XM 1200 Spot is also available with a magnetic ballast, with selectable power supply (220/230/240 V). Power consumption is 1300 W.

Remote Lamp on/off via DMX

Net weight: 44 Kg (with electronic ballast); 54 Kg (with magnetic ballast).

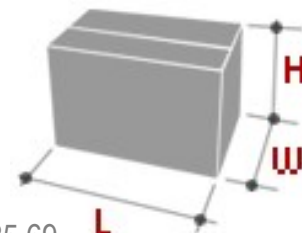


Packaging Dimensions (LxWxH)

890x600x510mm

Weight: 54 Kg (with electronic ballast)

64 Kg with magnetic ballast



2- IMPORTANT SAFETY INFORMATION

2.1 Fire prevention:

- XM1200 fit a Philips 1200W MSR/SA.
- Other recommended lamps are: Osram HTI 1200W/SE PP; GE Lighting CSR1200W SA
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: 1 m.
- Replace any blown or damaged fuses only with those of identical value. Refer to the wiring diagram if there is any doubt.
- Connect the projector to mains power via a thermal magnetic circuit breaker.

2.2 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 XM1200 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 projector.
- Never connect the unit without proper earth connection.
- The fixture should be located in places with a good air ventilation.

2.3 Protection against ultraviolet radiation:

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

2.4 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 chain 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 10 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 10 minutes prior to attempting to replace the lamp.
- Always wear suitable hand protection when handling the lamp.

2.5 Level of protection against the penetration of solid and liquid matter:

- The projector is classified as an ordinary appliance and its protection level against the penetration of solid and liquid matter is IP 20. XM1200 uses Philips 1200 MSR/SA lamp with GY 22 socket. The temperature inside the projector can reach 250° C after just 5 minutes, but it can get as high as 350° C. Always check that the lamp is cold before attempting to remove it. In any case, only open the unit 10 minutes after it has been turned off

3- MOUNTING THE LAMPS:

Warning: Switch off the unit before replacing the lamp.

Philips MSR1200/SA
Power 1200W
Luminous flux 96,000 lm
Colour temperature 5.600°K
Lamp base GY 22
Rated life 800 hours

Osram HTI 1200W/SE PP
Power 1200W
Luminous flux 105,000 lm
Colour temperature 5.400°K
Lamp base GY 22
Rated life 750 hours

GE Lighting CSR1200W SA
Power 1200W
Luminous flux 100,000 lm
Colour temperature 5.800°K
Lamp base GY 22
Rated life 750 hours

1) Using a screwdriver, remove the 4 screws (A,B, C,D) (photo 1) which fix the lamp holder.



Photo 1

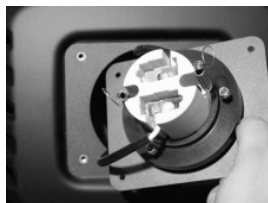


Photo 2



Photo 3



Photo 4

2) Remove the lamp holder assembly (photo2).

Insert the lamp (photo 3).

The lamp used on XM 1200 is made in quartz glass and should be handled with care. Always follow the instructions supplied in the lamp's packaging. Never touch the glass directly but use the tissue provided in the lamp's packaging. The GY22 lamp socket is not symmetrical.

DO NOT USE UNDUE FORCE ON THE GLASS. In case of difficulty, read again the instructions and repeat the procedure.

3) Replace the lamp assembly and tighten the screws (A,B,C,D) which were previously removed (photo 4).

3.1 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.



Photo 5

Alignment is carried out using the 3 adjusters X, Y and Z.

During this operation you must have a uniform luminosity all around the projected area.

4- Voltage and frequency

The Xm1200 E.B.(ELECTRONIC BALLAST) can operate at 190-245 VOLT 50 or 60 Hz.

5- Installation

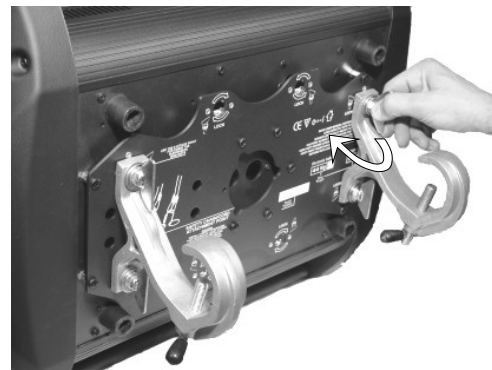
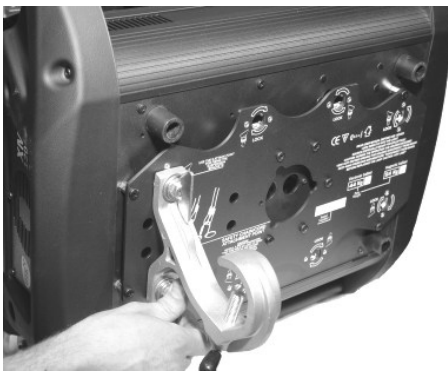
XM1200 may be either floor or ceiling mounted.

For floor mounting installations, the XM1200 is supplied with four rubber mounting feet on the base.

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. The structure should also be sufficiently rigid so as not to move or shake whilst the XM1200 is moving.

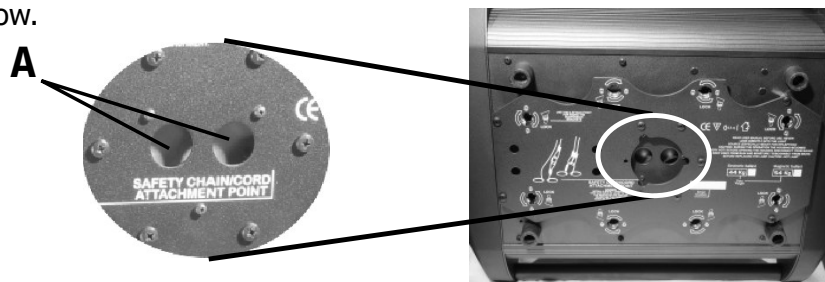
Eight quarter turn fast locks placed on the base of the units, allows by using the two fast lock C clamps provided in the box, to fix the unit in any position.



Safety chain

We recommend the use of a safety cable or chain connected to the XM1200 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 to the two holes (A) located on the base of the fixture, as shown in the picture below.

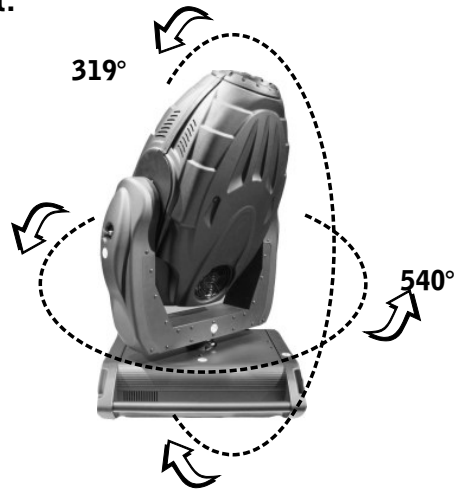


Protection against liquids

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.

Movement

The projector has a maximum movement of 540° for Pan and 319° for Tilt. **DO NOT** place any obstructions in the path of the projector's movement.



Risk of fire

Each fixture produces heat and must be installed in a well-ventilated place. The minimum recommended distance from flammable material is 0.5m. Minimum distance from the object being illuminated is 2 m.

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.

Ambient temperature

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

6- MAINS CONNECTION

XM1200 operates at 190-245V at 50 or 60Hz. 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 of a suitable rating of 8 amps at 230V.

Strict adherence to regulatory norms is strongly recommended.



190-245V 50 / 60Hz

Protection

The use of a thermal magnetic circuit breaker is recommended for each Xm1200. A good earth connection is essential for the correct operation of the projector.

7- DMX signal connection

The unit operates using the digital DMX 512 (1990) signal. Connection between the mixer and the

the projector or between projectors must be carried out using a two pair screened \varnothing 0.5 mm cable and a **CANNON 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.

In 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:

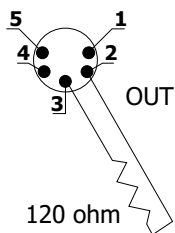
- DMX signal not present
- DMX address not valid
- DMX reception problem



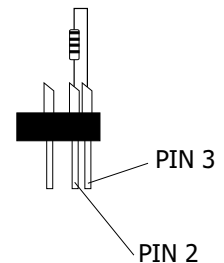
For Installations where long distance DMX cable connections are needed, we suggest to use a DMX terminator.

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 in 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



The standard configuration of the Xm1200 is with XLR 5 pins connection.

To convert to an XLR 3 pins configuration proceed as follows:

- 1) Remove the 4 screws fixing the display cover panel to the unit (photo 1).
- 2) Remove the screws that fix the XLR connectors to the panel (photo 2).
- 3) Rotate the electronic card by 180° (photo 3).
- 4) Place the 3 pins XLR connectors in the special holes and close.



Photo 1



Photo 2



Photo 3

DMX Addresses

Xm1200 can be used in two different modes: 30 or 18 DMX channels.

If you want to use the XM1200 in 18 channels mode, select the 18 CH mode from the MODE menu and 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	A073	

If you want to use the XM1200 in 30 channels mode, select the 30 CH mode from the MODE menu and set the following addresses:

Projector 1	A001	
Projector 2	A031	If you want to select the next projector, just add "30"
Projector 3	A061	
.....	A....	
Projector 6	A151	

Changing the DMX address

1) Press the UP-DOWN key until you reach the required DMX number. The numbers on the display will start to flash (but the new DMX address hasn't yet been set).

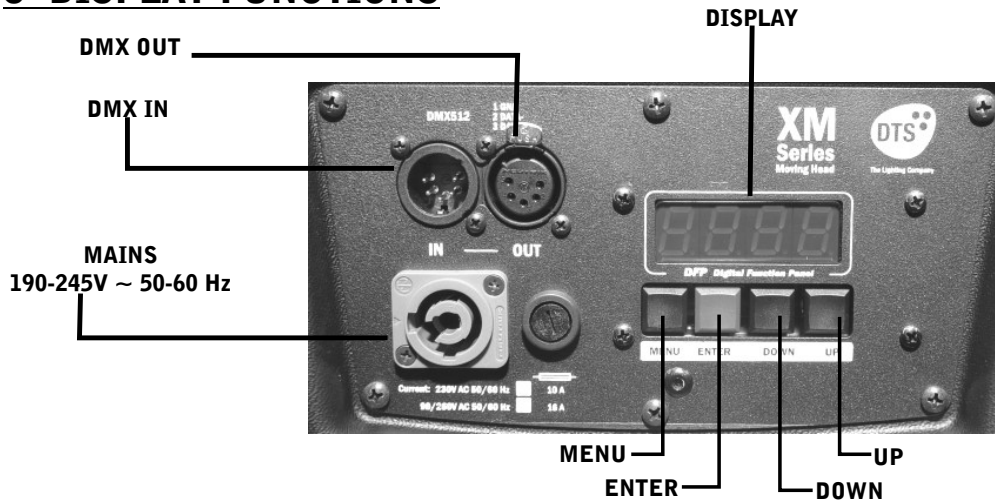
2) Press ENTER to confirm your selection. The numbers on the display will stop flashing and the projector is now controlled by the new DMX address.

TRICKS:

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

Pushing UP and DOWN keys together, will set the dmx address to channel 001.

































8- DISPLAY FUNCTIONS



DISPLAY FUNCTIONS

The XM1200 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.

 MENU	 UP-DOWN	ADD 1	 ENTER	 UP-DOWN	Pd ir	 UP-DOWN	CU	Clockwise	 ENTER
PAN MOVEMENT INVERSION To reverse Pan movement from left to right and vice versa on DMX level variation.									
 MENU	 UP-DOWN	td ir	 ENTER	 UP-DOWN	CU	 UP-DOWN	CCU	Counterclockwise	 ENTER
TILT MOVEMENT INVERSION To reverse Tilt movement from bottom upwards and vice versa on DMX level variation									
 MENU	 UP-DOWN	d ISP	 ENTER	 UP-DOWN	POS 1	 ENTER	 UP-DOWN	AA	Floor position  ENTER
REVERSE DISPLAY Reverses display's reading depending on the mounting position (On the ground or suspended).									
 UP-DOWN	 UP-DOWN	Stby	 ENTER	 UP-DOWN	off	Display OFF  ENTER			
DISPLAY STAND BY To turn off the display (after 5 seconds) Or leave it always on.									
 MENU	 UP-DOWN	mode	 ENTER	 UP-DOWN	30CH	30 CHANNELS (Pan & Tilt 16 bit)			 ENTER
DMX MODE To select DMX mode : 30-18 channels									
 UP-DOWN	 UP-DOWN	18CH	18 CHANNELS (Pan & Tilt 16 bit)			 ENTER			

8- DISPLAY FUNCTIONS

<p> TEST</p> <p>TEST MODE Full test and single function test.</p>	<p> ALL</p> <p> PAN</p> <p> TILT</p> <p> DIMMER</p> <p> SHUTTER</p> <p> IRIS</p> <p> GOB01</p>	<p>GOB01 ROT. 01.rt</p> <p>GOB01 SHAKE 01.5H</p> <p>GOB02 006.2</p> <p>GOB02 ROT. 02.rt</p> <p>GOB02 SHAKE 02.5H</p> <p>EFFECTS EFF</p> <p>EFFECTS ROT. EF.rt</p>	<p>→ CYAN CYAN</p> <p>MAGENTA MAGE</p> <p>YELLOW YELL</p> <p>COLOR COLr</p> <p>FOCUS FOCU</p> <p>ZOOM 2000</p>
<p> LAMP</p> <p>LAMP Lamp always ON-always OFF Or lamp ON-OFF selectable via DMX</p> <p>ADJUST To adjust the lamp with no mixer connected. It's possible to set the parameters for PAN-TILT-FOCUS and ZOOM</p>	<p> ONH</p> <p> on</p> <p> off</p> <p> ADJ</p>	<p> ON / OFF VIA DMX (default)</p> <p> FORCED ON</p> <p> FORCED OFF</p>	<p> PAN 128</p> <p> TILT 128</p> <p> FOCUS 128</p> <p> ZOOM 128</p>
<p>SENS To set ON-OFF the electronic lamp sensor</p>	<p> SENS</p> <p> on</p> <p> off</p>	<p> on</p> <p> off</p>	
<p>ACC Lamp strikes counter</p>	<p> ACC</p> <p> 10</p>	<p> 10</p>	
<p> RESE</p> <p>RESET All motors reset</p>	<p> En</p> <p> ds</p> <p> RESE</p>	<p> RESET ENABLED VIA DMX</p> <p> RESET DISABLED VIA DMX</p> <p> RESET ALL MOTORS</p>	
<p> DFSE</p> <p>DEFAULT To restore default setting</p>	<p> SURF</p>	<p> SURF</p>	
<p> FANS</p> <p>Fan control To control the fan speed .</p>	<p> 1</p> <p> 30</p>	<p> (DEFAULT : 30)</p>	
<p> SPEED</p> <p>SPEED control Pan Tilt Speed control.</p>	<p> 1</p> <p> 4</p>	<p> (DEFAULT : 2)</p>	

8- DISPLAY FUNCTIONS

	SOFT		d2.00	DISPLAY SOFTWARE (8 MOT PCB N°2) PAN-TILT SOFTWARE (PAN-TILT PCB) HEAD MOT. SOFTWARE (8 MOT PC N°1)		
SOFTWARE VERSION Electronic cards software version.			P 1.02			
			n 1.09			
	TEMP		50°C			
TEMPERATURE Head electronic thermic sensor						
	AFoc		off		AUTOMATIC FOCUS DISABLE	
AUTO FOCUS Automatic focusing			on		AUTOMATIC FOCUS ENABLE	
	rotG		off		GOBO ROTATION DISABLE	
GOBO ROTATION GOBO ROTATION during gobo scrolling			on		GOBO ROTATION ENABLE	
	r5ud		Code		100	
RESERVED Pan lock-Tilt lock Pan free-Tilt free						
PAN LOCK LOCK THE PAN TO THE DESIRED VALUE			Pn.LH		no	
			YES		128	
TILT LOCK LOCK THE TILT TO THE DESIRED VALUE			tLLH		no	
			YES		128	
PAN FREE REMOVE POWER TO PAN MOTOR			Pn.Fr		no	
			YES			
TILT FREE REMOVE POWER TO TILT MOTOR			tL.Fr		no	
			YES			
			ESC			
	t.me		LAMP		4	
TIMER lamp life TIME (reset possible) and total UNIT LIFE TIME (reset not possible)			Unit		8	
			rESL		SURE	

9- ERROR MESSAGES

OPEr	— ERROR: ENCODER PAN
OTEr	— ERROR: ENCODER TILT
AdEr	— ERROR: DMX ADDRESS
AUEr	— ERROR: AUTO MODE INPUT
dtEr	— ERROR: EEPROM DATA LOADER
S1Er	— ERROR: RESET CIRCUIT LINE1 (CMY)
S2Er	— ERROR: RESET CIRCUIT LINE2 (GOB01 , COLOR)
S3Er	— ERROR: RESET CIRCUIT LINE3 (GOB02 , FOCUS , ZOOM)
S4Er	— ERROR: RESET CIRCUIT LINE4 (EFFECTS , IRIS)
MAEr	— ERROR: MAGENTA POSITION
CYEr	— ERROR: CYAN POSITION
YEEr	— ERROR: YELLOW POSITION
G1Er	— ERROR: GOB01 POSITION
r1Er	— ERROR: GOB01 INDEX POSITION
COEr	— ERROR: COLOUR WHEEL POSITION
G2Er	— ERROR: GOB02 POSITION
r2Er	— ERROR: GOB02 INDEX POSITION
ZOEr	— ERROR: ZOOM POSITION
FOEr	— ERROR: FOCUS POSITION
EFEr	— ERROR: EFFECT WHEEL POSITION
rEEr	— ERROR: EFFECT INDEX POSITION
irEr	— ERROR: IRIS POSITION

10- HIDDEN MENU

For technical personnel only.

To operate this menu:

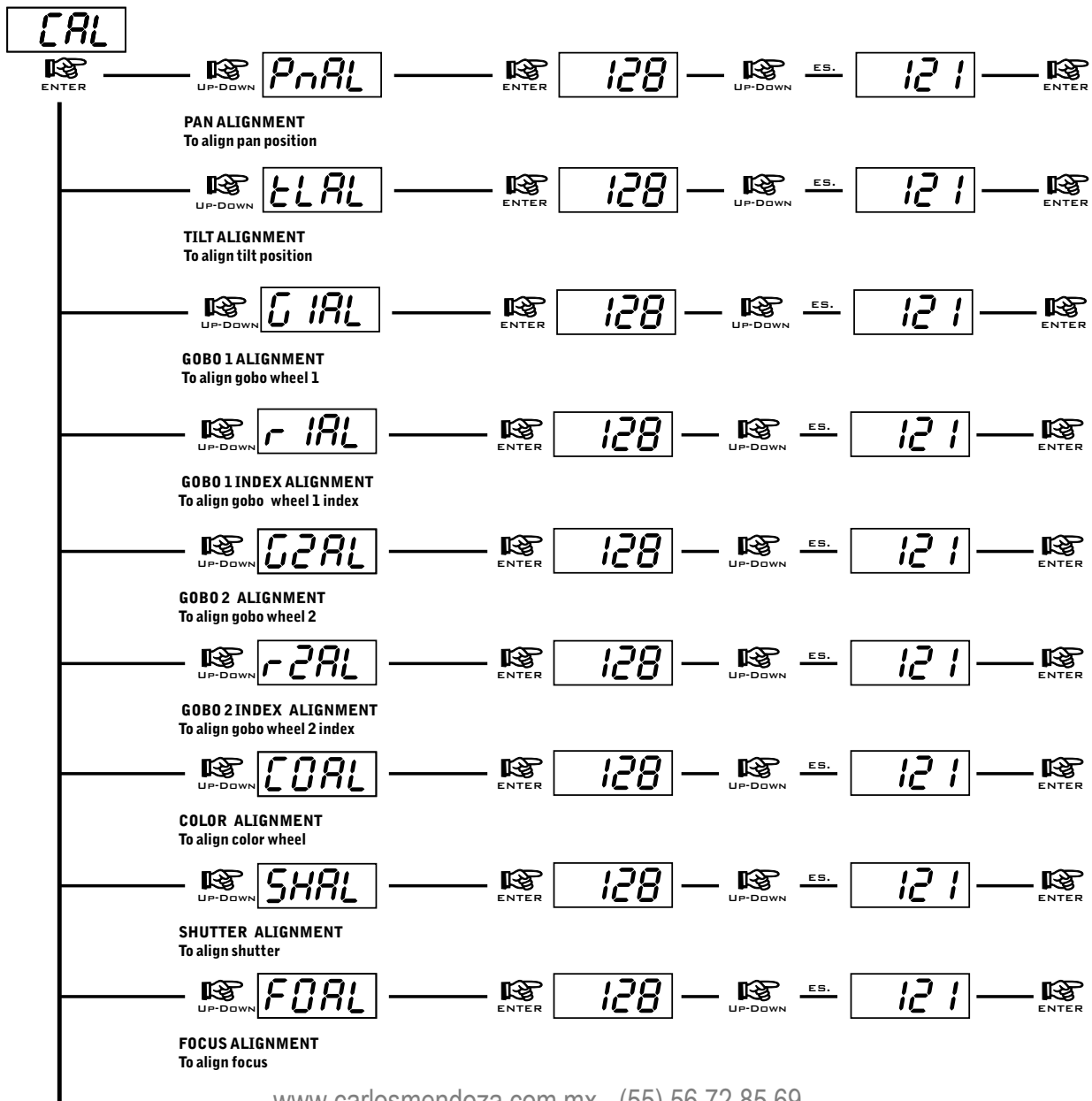
-Connect the projector to the DMX controller (DMX SIGNAL MUST BE CORRECTLY RECEIVED)

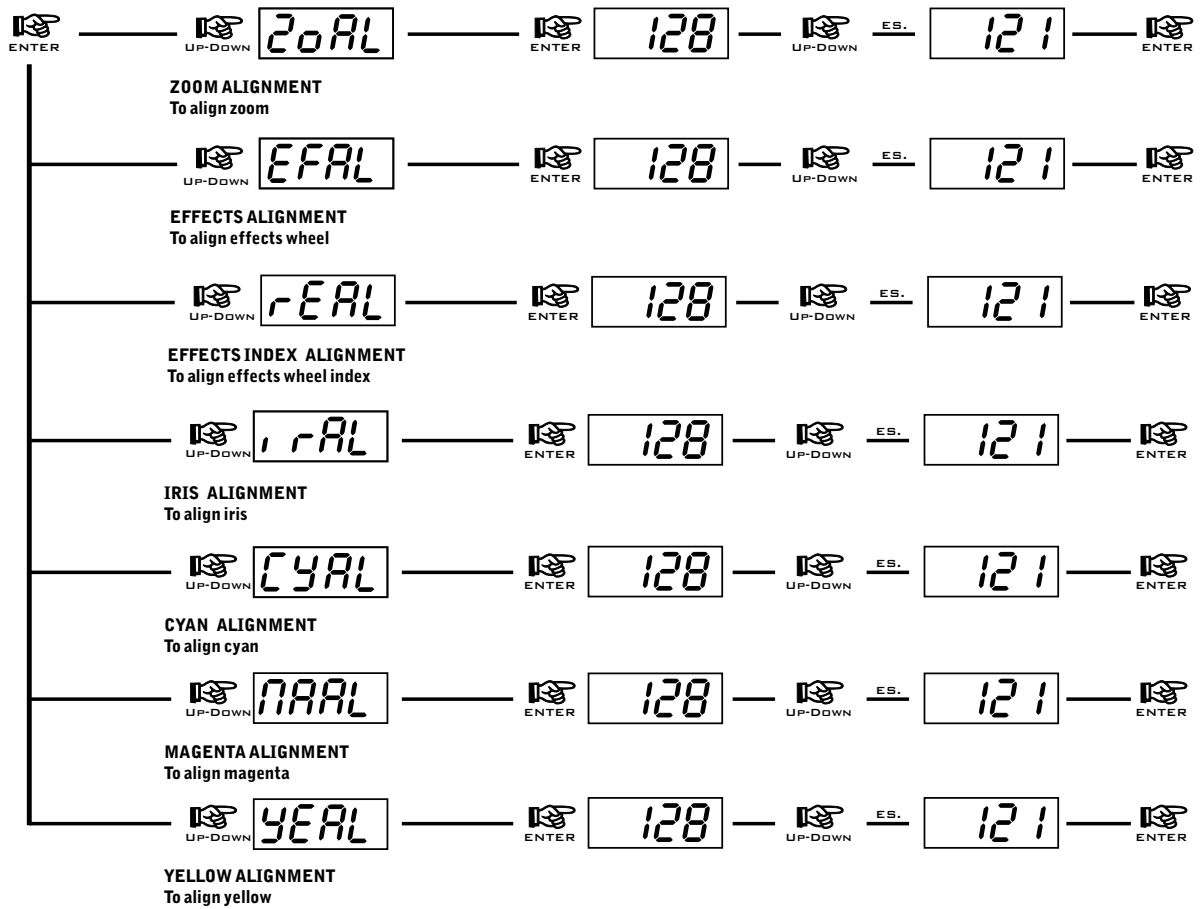
- Reset the XM1200 (reset from the MENU, not from the DMX controller!).
- While reset is running, press the MENU and ENTER keys at the same time.

CAL Electronic calibration of the motors.

RESN Reset EEPROM (Reset all settings. ATTENTION: by pressing this key you must repeat all previous calibrations)

ESC Exit from hidden menu.





11- Opening up 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 screws which fix the side covers (photo 1 and 2) .
- 2) Once unscrewed, simply lift the covers to access the internal components (photo 3).



Photo 1



Photo 2



Photo 3

12- Replacing gobos

XM1200 uses a mechanical system which allows the fixture's gobos to be removed without the use of special tools. Replacement gobos should be made of either heat resistant glass or metal.

An ever-increasing range of gobos is available from your DTS sales network.

Gobo dimensions are as follows:

∅ external = 37 mm

∅ of image with defined edge = 32 mm

thickness = from 0.2 to 3.5 mm (see catalogue)

Replacing gobos on the rotating gobo wheels

When replacing gobos, ensure that the projector is switched off.

- 1) Open the projector housing as described above.
- 2) Remove the gobo holder to allow easier access to the gobo(photo 1-2).
- 3) Release the gobo retaining spring and carefully remove the gobo (photo 3).
- 4) Reverse the procedure to install a replacement gobo.



Photo 1 (gobo wheel 1)

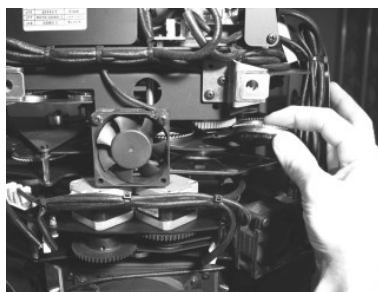


Photo 2 (gobo wheel 2)



Photo 3

13 Periodic cleaning

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.

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.

Periodic controls

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.

Mechanical parts

Periodically check all mechanical parts gears, guides, belts, etc. for wear and tear, replacing them if necessary. Periodically check the lubrication of all components, particularly the parts subject to high temperatures. If necessary, lubricate with suitable lubricant, 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 Xm1200.

Using a multimeter, test the condition of the fuse, replacing it with one of equivalent type if necessary.

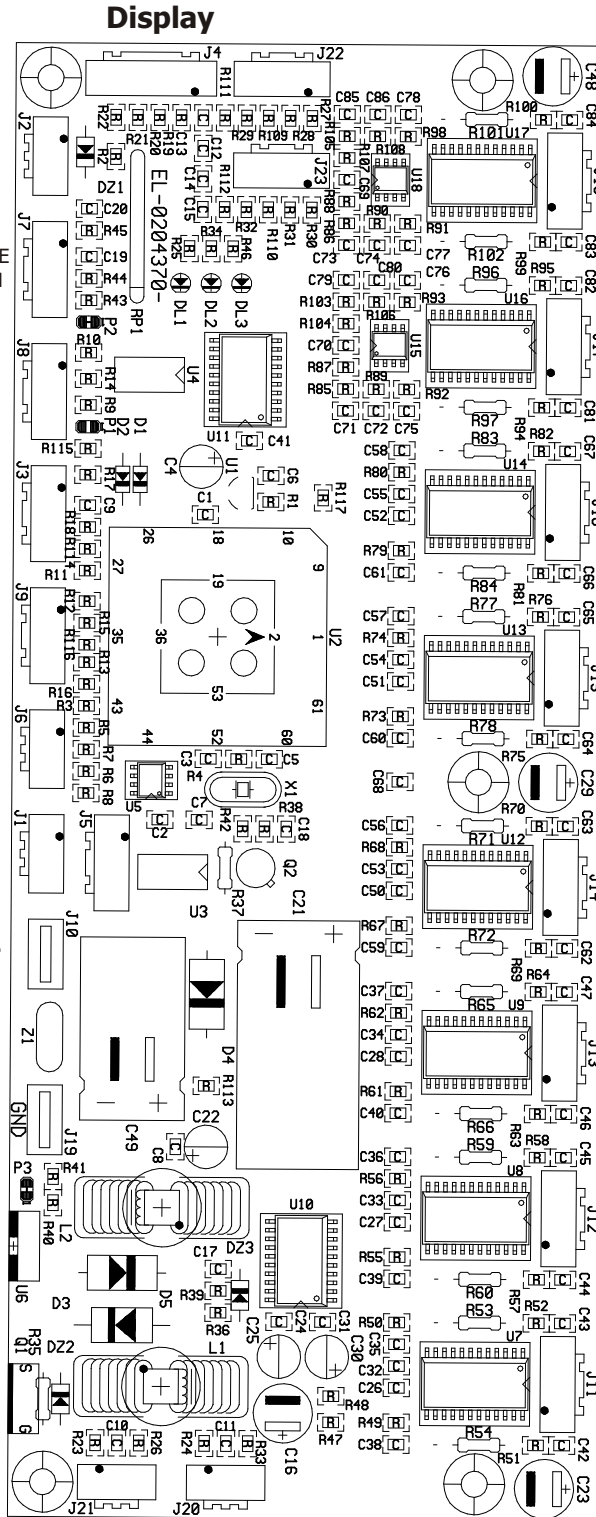
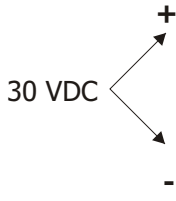
Attention

Disconnect mains power prior to removing the projector housing.

14- CONTROL MOTORS CAR

8 MOTORS PCB "1

- Magnetic Sensors
 - Line 1 Brown
 - Line 2 Orange
- Electronic sensors lamp&temp
 - TEMP
 - GND
 - LIGHT
 - GND
- J3 FROM
 - J8 PAN & TILT
- J9 FROM
 - J2 TCN0108
- J5 FROM
 - J10 PAN & TILT



- Gobo1 (line 2) (BLACK)
- Gobo1 Rot. (Line 1) (DARK GREEN)
- Strobe (YELLOW)
- Yellow (line 1) (PINK)
- Free
- Colours (line 2) (LIGHT BLUE)
- Cyan (Line 1) (GOLD)
- Magenta (line 1) (BLUE)

Fans

14- CONTROL MOTORS CAR

8 MOTORS PCB "2"

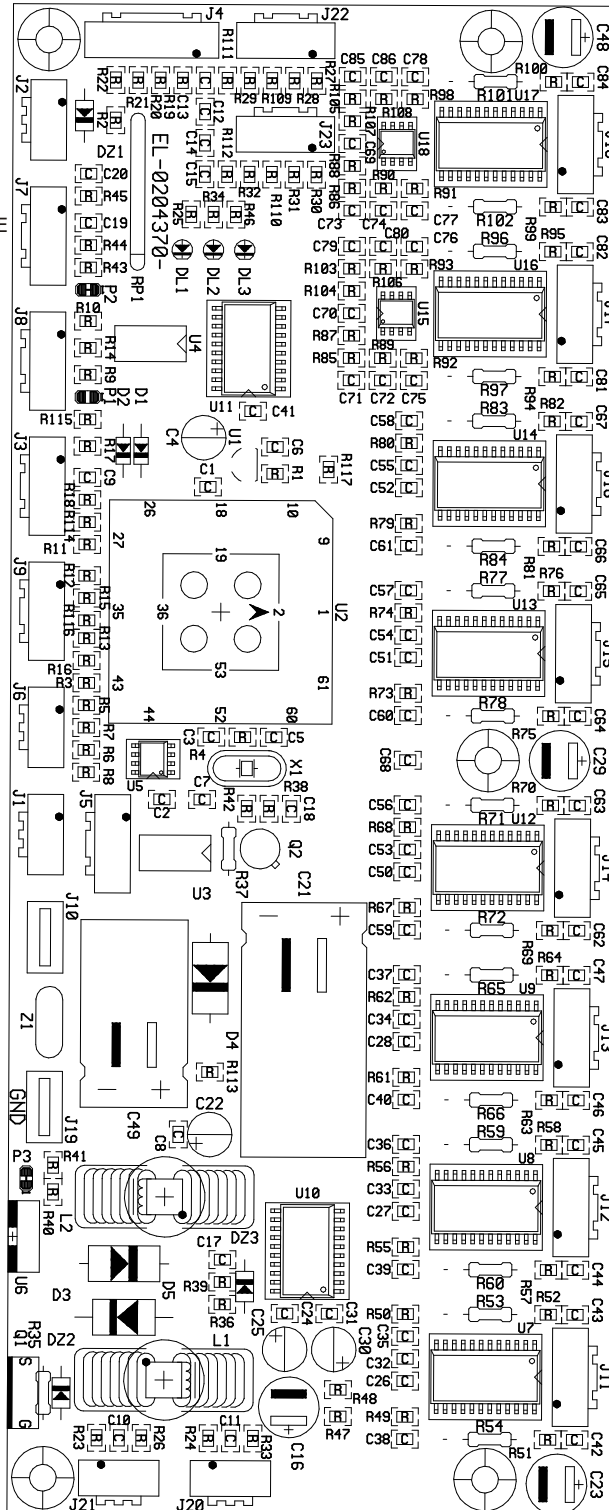
Magnetic
Sensors
Line 1 Brown
Line 2 Orange

GND
ORANGE
BROWN
VCC

J3 FROM
J8 PAN & TILT

J5 FROM
J10 PAN & TILT

30 VDC
+
-
GND



FANS

Gobo2 (line 1)
(BLACK)

Gobo2 Rot. (Line 1)
(DARK GREEN)

Free

Effects (line 2)
(PINK)

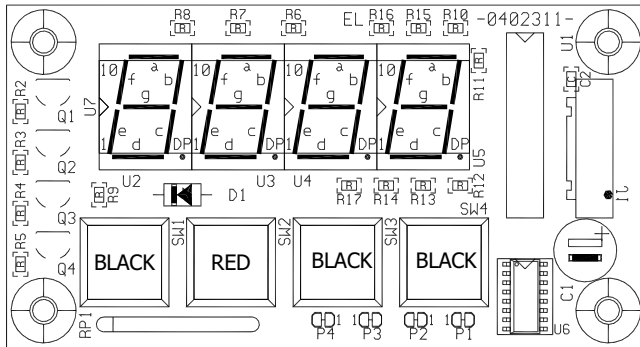
Iris (line 2)
(GREY)

Zoom (line 1)
(LIGHT BLUE)

Effects Rot. (Line 2)
(GOLD)

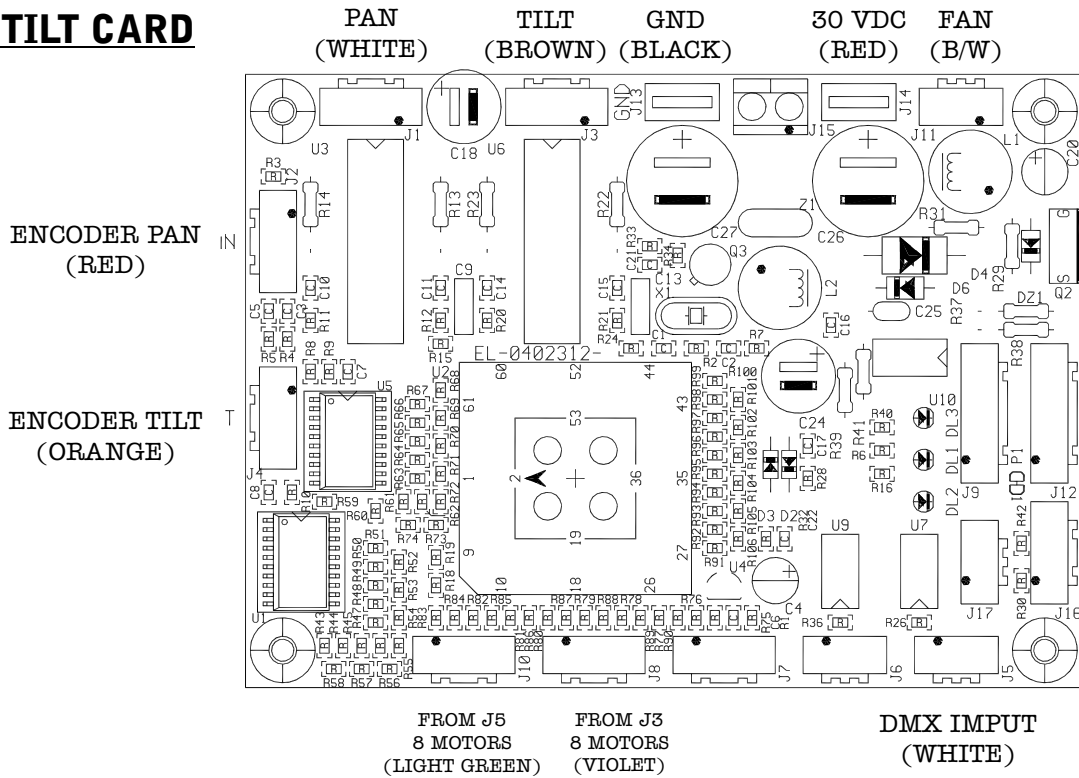
Focus (line 1)
(BLUE)

15-DISPLAY CARD

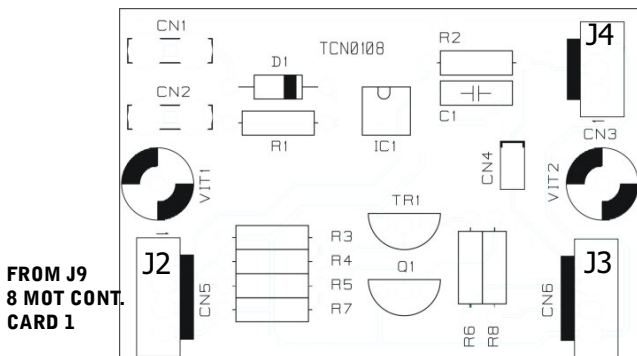


FROM J4
8 MOTORS CARD

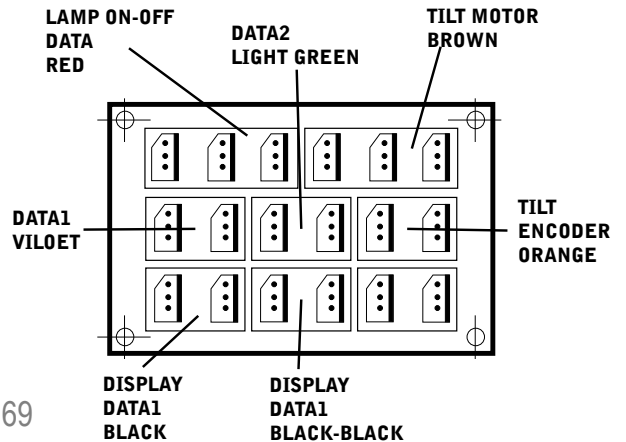
16-PAN & TILT CARD



17-LAMP ON-OFF CONTROL CARD



18-CABLES RESEND CARD



19- DMX PROTOCOL

18 CHANNELS MODE

- 1 PAN msb 540°
- 2 PAN lsb
- 3 TILT msb 270°
- 4 TILT lsb
- 5 DIMMER
- 6 SHUTTER
- 7 COLOUR
- 8 COLOUR MACROS
- 9 GOBO 1
- 10 GOBO 1 ROTATION/INDEX
- 11 GOBO 2
- 12 GOBO 2 ROTATION/INDEX
- 13 IRIS
- 14 EFFECTS
- 15 EFFECTS ROTATION
- 16 FOCUS
- 17 ZOOM
- 18 LAMP ON/OFF - RESET

DMX CHANNEL	1	Parameter: PAN msb
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DMX CHANNEL	2	Parameter: PAN lsb
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DMX CHANNEL	3	Parameter: TILT msb
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DMX CHANNEL	4	Parameter: TILT lsb
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DMX CHANNEL	5	Parameter: DIMMER
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-7					Black-out
8-255			Proportional dimmer from Closed to Open		

DMX CHANNEL	6	Parameter: SHUTTER
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-19					Black-out
20-39					Open
40-59					Black-out
60-79					Random Strobe
80-89					Strobe speed 1 min.
90-99					Strobe speed 2
100-109					Strobe speed 3
110-119					Strobe speed 4
120-129					Strobe speed 5
130-139					Strobe speed 6 max.
140-149					Pulse open speed 1 min.
150-159					Pulse open speed 2
160-169					Pulse open speed 3
170-179					Pulse open speed 4 max.
180-189					Pulse closed speed 1 min.
190-199					Pulse closed speed 2
200-209					Pulse closed speed 3
210-219					Pulse closed speed 4 max.
220-227					Colour and Gobo in black-out
228-233					Pan and Tilt in black-out
234-255					Open

DMX CHANNEL	7	Parameter: COLOUR
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-10	5				Colour1
11-21	16				Bicolour 1/2
22-32	27				Colour2
33-43	38				Bicolour 2/3
44-54	49				Colour3
55-65	60				Bicolour 3/4
66-76	71				Colour4
77-87	82				Bicolour 4/5
88-98	93				Colour5
99-109	104				Bicolour 5/6
110-120	115				Colour6
121-131	126				Bicolour 6/7
132-142	137				Colour7
143-153	148				Bicolour 7/8
154-164	159				Colour8

DMX CHANNEL	7	Parameter: COLOUR
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
165-175	170				Bicolour 8/9
176-186	181				Colour9
187-197	192				Bicolour 9/1
198-200	199				Right rotation speed 1 max.
201-203	200				Right rotation speed 2
204-206	205				Right rotation speed 3
207-209	208				Right rotation speed 4
210-212	211				Right rotation speed 5
213-215	214				Right rotation speed 6
216-218	217				Right rotation speed 7
219-221	220				Right rotation speed 8
222-224	223				Right rotation speed 9 min.
225-228	226				Stop
229-231	230				Left rotation speed 1 min.
232-234	233				Left rotation speed 2
235-237	236				Left rotation speed 3
238-240	239				Left rotation speed 4
241-243	242				Left rotation speed 5
244-246	245				Left rotation speed 6
247-249	248				Left rotation speed 7
250-252	251				Left rotation speed 8
253-255	254				Left rotation speed 9 max.

DMX CHANNEL	8	Parameter: COLOUR MACROS
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-35	18				No Effect
36-71	52				Macro 1
72-107	90				Macro 2
108-143	126				Macro3
144-179	160				Macro 4
180-215	198				Macro 5
216-255	232				Macro 6

DMX CHANNEL	9	Parameter: GOBO 1
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-29	15				Open
30-59	45				Gobo 1
60-89	75				Gobo 2
90-119	105				Gobo 3
120-149	135				Gobo 4
150-179	165				Gobo 5
180-207	168				Gobo 6
208-213	210				Speed rotation 1 min.
214-219	216				Speed rotation 2
220-225	222				Speed rotation 3
226-231	228				Speed rotation 4
232-237	234				Speed rotation 5
238-243	240				Speed rotation 6
244-249	246				Speed rotation 7
250-255	252				Speed rotation 8 max.

DMX CHANNEL	10	Parameter: GOBO 1 ROTATION/INDEX
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-127					Index 0° - 360°
128-185					Left rotation from fast to slow
186-197					Stop
198-255					Right rotation from slow to fast

DMX CHANNEL	11	Parameter: GOBO 2
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-29	15				Open
30-59	45				Gobo 1
60-89	75				Gobo 2
90-119	105				Gobo 3
120-149	135				Gobo 4
150-179	165				Gobo 5
180-207	168				Gobo 6
208-213	210				Speed rotation 1 min.
214-219	216				Speed rotation 2
220-225	222				Speed rotation 3
226-231	228				Speed rotation 4
232-237	234				Speed rotation 5
238-243	240				Speed rotation 6
244-249	246				Speed rotation 7
250-255	252				Speed rotation 8 max.

DMX CHANNEL	12	Parameter: GOBO 2 ROTATION/INDEX
-------------	----	---

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-127					Index 0° - 360°
128-185					Left rotation from fast to slow
186-197					Stop
198-255					Right rotation from slow to fast

DMX CHANNEL	13	Parameter: IRIS
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-9					Open
10-124					Linear Iris from Open to Closed
125-132					Closed
133-159					Iris pulse at different speeds from Min to Max
160-186					Iris closing at different speed from Min to Max
187-214					Iris openig at different speed from Min to Max
215-234					Iris closing combined with Zoom at different speed from Min to Max
215-234					Iris openig combined with Zoom at different speed from Min to Max

DMX CHANNEL	14	Parameter: EFFECTS
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-41					No effect
42-83					Effect 1
84-125					Effect 2
126-167					Effect 3
168-209					Effect 4
210-255					Effect 5

DMX CHANNEL	15	Parameter: EFFECTS ROTATION/INDEX
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-127					Index 0°- 360°
128-180					Left rotation from Max to Min
181-202					Stop
203-255					Right rotation from Min to Max

DMX CHANNEL	16	Parameter: FOCUS
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-255					Linear Focus

DMX CHANNEL	17	Parameter: ZOOM
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-255					Linear Zoom

DMX CHANNEL	18	Parameter: RESET
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-9					No Effect
10-60					Lamp OFF (activ.after 3 seconds)
61-129					No Effect
130-179					Lamp ON (activ.after 3 seconds)
180-200					No Effect
201-239					Internal motor reset
240-255					Total Reset

30 CHANNELS MODE (DEFAULT)

1	PAN msb 540°
2	PAN lsb
3	TILT msb 270°
4	TILT lsb
5	SPEED MOVEMENT
6	DIMMER
7	SHUTTER
8	COLOUR
9	COLOUR MODE
10	CYAN
11	MAGENTA
12	YELLOW
13	COLOUR MACROS
12	GOBO 1
15	GOBO 1 MODE
16	GOBO 1 ROTATION/INDEX COARSE
17	GOBO 1 INDEX FINE 16 bit
18	GOBO 1 SHAKE
19	GOBO 2
20	GOBO 2 MODE
21	GOBO 2 ROTATION/INDEX COARSE
22	GOBO 2 INDEX FINE 16 bit
23	GOBO 2 SHAKE
24	IRIS
25	IRIS MACROS
26	EFFECTS
27	EFFECTS ROTATION
28	FOCUS
29	ZOOM
30	LAMP ON/OFF - RESET

DMX CHANNEL	1	Parameter: PAN msb
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DMX CHANNEL	2	Parameter: PAN lsb
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DMX CHANNEL	3	Parameter: TILT msb
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DMX CHANNEL	4	Parameter: TILT lsb
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DMX CHANNEL	5	Parameter: SPEED MOVEMENT
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-10	5				Standard
11-25	18				Fast movement
26-127					Vector mode from fast to slow
128-247					Variable time reaction to DMX signal (fast to slow)
248-255	251				Slow reaction time to DMX signal

DMX CHANNEL	6	Parameter: DIMMER
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-8	4				Black-out
9-255					Proportional dimmer

DMX CHANNEL	7	Parameter: SHUTTER
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-19					Black-out
20-39					Open
40-59					Black-out
60-79					Random Strobe
80-89					Strobe speed 1 min.
90-99					Strobe speed 2
100-109					Strobe speed 3
110-119					Strobe speed 4
120-129					Strobe speed 5
130-139					Strobe speed 6 max.
140-149					Pulse open speed 1 min.
150-159					Pulse open speed 2
160-169					Pulse open speed 3
170-179					Pulse open speed 4 max.
180-189					Pulse closed speed 1 min.
190-199					Pulse closed speed 2
200-209					Pulse closed speed 3
210-219					Pulse closed speed 4 max.
220-227					Colour and Gobo in black-out
228-233					Pan and Tilt in black-out
234-255					Open

DMX CHANNEL	8	Parameter: COLOUR
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
IF CHANNEL 9 = FULL COLOUR (Dmx range value 0 - 63)					
0-27					Colour1
28-55					Colour2
56-83					Colour3
84-111					Colour4
112-139					Colour5
140-167					Colour6
168-195					Colour7
196-223					Colour8
224-255					Colour9

DMX CHANNEL	8	Parameter: COLOUR 1
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
IF CHANNEL 9 = HALF COLOUR (Dmx range value 64 - 127)					
0-25					No Colour
26-51					Bicolour 1/2
52-77					Bicolour 2/3
78-103					Bicolour 3/4
104-129					Bicolour 4/5
130-155					Bicolour 5/6
156-181					Bicolour 6/7
182-207					Bicolour 7/8
208-233					Bicolour 8/9
234-255					Bicolour 9/1
IF CHANNEL 9 = PROPORTIONAL COLOUR (Dmx range value 128 - 191)					
0-10					No Colour
11-255					Proportional colour
IF CHANNEL 9 = RAINBOW (Dmx range value 192 - 255)					
0-9					No Colour
10-127					Right Rot.Speed from Max to Min
128-137					Stop
138-255					Left Rot.speed from Min to Max

DMX CHANNEL	9	Parameter: COLOUR MODE
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-63					Full Colour
64-127					Half Colour
128-191					Proportional Colour
192-255					Rainbow

DMX CHANNEL	10	Parameter: CYAN
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-255					Proportional Colour

DMX CHANNEL	11	Parameter: MAGENTA
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-255					Proportional Colour

DMX CHANNEL	12	Parameter: YELLOW
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-255					Proportional Colour

DMX CHANNEL	13	Parameter: COLOUR MACROS
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-9	5				No Effect
10-44	28				Macro 1
45-79	64				Macro 2
80-114	96				Macro3
115-149	134				Macro 4
150-184	168				Macro 5
185-219	204				Macro 6
220-255	238				Macro 7

DMX CHANNEL	14	Parameter: GOBO 1
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-29	15				Open
30-59	45				Gobo 1
60-89	75				Gobo 2
90-119	105				Gobo 3
120-149	135				Gobo 4
150-179	165				Gobo 5
180-207	168				Gobo 6
208-213	210				Speed rotation 1 min.
214-219	216				Speed rotation 2
220-225	222				Speed rotation 3
226-231	228				Speed rotation 4
232-237	234				Speed rotation 5
238-243	240				Speed rotation 6
244-249	246				Speed rotation 7
250-255	252				Speed rotation 8 max.

DMX CHANNEL	15	Parameter: GOBO 1 MODE
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-127					Gobo Rotation Mode
128-255					Gobo Index Mode

DMX CHANNEL	16	Parameter: GOBO 1 ROTATION/GOBO 1 INDEX COARSE
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
IF CHANNEL 15 = Gobo Rotation Mode (Dmx range value 0 - 127)					
0-9					Stop
10-127					Right Rot. Prop. Speed Max to Min
128-137					Stop
138-255					Left Rot. Prop. Speed Min to Max
IF CHANNEL 15 = Gobo Index Mode (Dmx range value 128 - 255)					
0-255					Gobo index Coarse

DMX CHANNEL	17	Parameter: GOBO 1 INDEX FINE
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-255					Gobo Index Fine

DMX CHANNEL	18	Parameter: GOBO 1 SHAKE
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-9					Stop
10-22					Gobo Shake R-L Speed 1 Min.
23-35					Gobo Shake R-L Speed 2
36-48					Gobo Shake R-L Speed 3
49-61					Gobo Shake R-L Speed 4
62-74					Gobo Shake R-L Speed 5
75-87					Gobo Shake R-L Speed 6
88-100					Gobo Shake R-L Speed 7
101-113					Gobo Shake R-L Speed 8
114-126					Gobo Shake R-L Speed 9 Max
127-138					Stop
139-151					Gobo Shake L-R Speed 1 Min
152-164					Gobo Shake L-R Speed 2
165-177					Gobo Shake L-R Speed 3
178-190					Gobo Shake L-R Speed 4
191-203					Gobo Shake L-R Speed 5
204-216					Gobo Shake L-R Speed 6
217-229					Gobo Shake L-R Speed 7
230-242					Gobo Shake L-R Speed 8
243-255					Gobo Shake L-R Speed 9 Max

DMX CHANNEL	19	Parameter: GOBO 2
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-29	15				Open
30-59	45				Gobo 1
60-89	75				Gobo 2
90-119	105				Gobo 3
120-149	135				Gobo 4
150-179	165				Gobo 5
180-207	168				Gobo 6
208-213	210				Speed rotation 1 min.
214-219	216				Speed rotation 2
220-225	222				Speed rotation 3
226-231	228				Speed rotation 4
232-237	234				Speed rotation 5
238-243	240				Speed rotation 6
244-249	246				Speed rotation 7
250-255	252				Speed rotation 8 max.

DMX CHANNEL	20	Parameter: GOBO 2 MODE
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-127					Gobo Rotation Mode
128-255					Gobo Index Mode

DMX CHANNEL	21	Parameter: GOBO 2 ROTATION/GOBO 2 INDEX COARSE
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
IF CHANNEL 20 = Gobo Rotation Mode (Dmx range value 0 - 127)					
0-9					Stop
10-127					Right Rot. Prop. Speed Max to Min
128-137					Stop
138-255					Left Rot. Prop. Speed Min to Max
IF CHANNEL 20 = Gobo Index Mode (Dmx range value 128 - 255)					
0-255					Gobo index Coarse

DMX CHANNEL	22	Parameter: GOBO 2 INDEX FINE
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-255					Gobo Index Fine

DMX CHANNEL	23	Parameter: GOBO 2 SHAKE
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-9					Stop
10-22					Gobo Shake R-L Speed 1 Min.
23-35					Gobo Shake R-L Speed 2
36-48					Gobo Shake R-L Speed 3
49-61					Gobo Shake R-L Speed 4
62-74					Gobo Shake R-L Speed 5
75-87					Gobo Shake R-L Speed 6
88-100					Gobo Shake R-L Speed 7
101-113					Gobo Shake R-L Speed 8
114-126					Gobo Shake R-L Speed 9 Max
127-138					Stop
139-151					Gobo Shake L-R Speed 1 Min
152-164					Gobo Shake L-R Speed 2
165-177					Gobo Shake L-R Speed 3
178-190					Gobo Shake L-R Speed 4
191-203					Gobo Shake L-R Speed 5
204-216					Gobo Shake L-R Speed 6
217-229					Gobo Shake L-R Speed 7
230-242					Gobo Shake L-R Speed 8
243-255					Gobo Shake L-R Speed 9 Max

DMX CHANNEL	24	Parameter: IRIS
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-9					Closed
10-246					Linear Iris from Open to Closed
247-255					Open

DMX CHANNEL	25	Parameter: IRIS MACROS
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-9					No effect
10-63					Iris pulse at different speeds from Max to Min
64-117					Iris pulse with flash closing from Min to Max
118-171					Iris pulse with flash opening from Min to Max
172-213					Iris pulse with flash closing combined with Zoom from Min to Max
214-255					Iris pulse with flash opening combined with Zoom from Min to Max

DMX CHANNEL	26	Parameter: EFFECTS
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-41					No effect
42-83					Effect 1
84-125					Effect 2
126-167					Effect 3
168-209					Effect 4
219-255					Effect 5

DMX CHANNEL	27	Parameter: EFFECTS ROTATION/INDEX
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-127					Index 0°- 360°
128-180					Left rotation from Min to Max
181-202					Stop
203-255					Right rotation from Min to Max

DMX CHANNEL	28	Parameter: FOCUS
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-255					Linear Focus

DMX CHANNEL	29	Parameter: ZOOM
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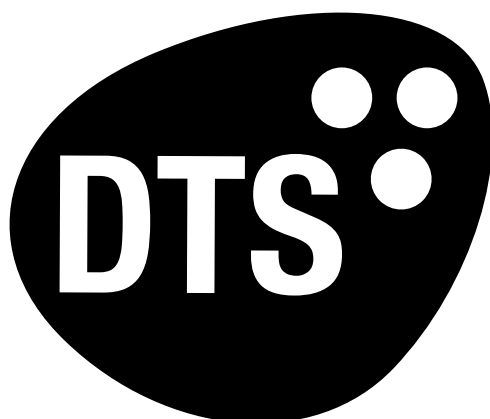
DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-255					Linear Zoom

DMX CHANNEL	30	Parameter: RESET
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DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-9					No Effect
10-60					Lamp OFF (activ.after 3 seconds)
61-129					No Effect
130-179					Lamp ON (activ.after 3 seconds)
180-200					No Effect
201-239					Internal motor reset
240-255					Total Reset

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