



# PANDA II

PR- 2100B

This product manual contains important information about the safe installation and use of this projector. Please read and follow these instructions carefully and keep this manual in a safe place for future reference.

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Please note that as part of our ongoing commitment to continuous product development, specifications are subject to change without notice. Whilst every care is taken in the preparation of this manual we reserve the right to change specifications in the course of product improvement. The publishers cannot be held responsible for the accuracy of the information herein, or any consequence arising from them.

Every apparatus is tested completely and packed properly by the manufacturer. Please make sure the packing and / or the apparatus is in good condition before your installation and use. Should there be any damage caused by transportation, consult your dealer and do not use the apparatus. But any damage caused by improper use will not be assumed by the manufacturer and / or dealer.

## ACCESSORIES

THESE ITEMS ARE PACKED TOGETHER WITH THE PROJECTOR

- Inner Bracket (1 PCS)
- Outer Bracket (1 PCS)
- M8 knobs for bracket (2 PCS)
- Power-cord (1 PCS)
- XLR plug (1 PCS)
- XLR socket (1 PCS)
- This manual (1 PCS)
- Remote Controller (Optional)

## INTRODUCTION

Thank you for purchasing our product PANDA II PR-2100B.

This product manual contains important information about the safe installation and use of this projector. Please read and follow these instructions carefully and keep this manual in a safe place for future reference.

PANDA II adopts advanced procedure of design and manufacturing and uses international protocol DMX 512 and compiles to CE norms. The figure of housing is elegant, lovable and portable, which features its special character compared with conventional luminaire. PANDA II can be suspended from the ceiling or be seated on the floor with the inner and outer brackets provided and the angle of the body is easy to be adjusted, and the projector even can be carried by hand.

The programmes having been set in the PANDA II may be activated by sound or controller. The PANDA II can be used as a stand-alone unit or linked with each other for multi-units or linked to a controller, so it is suitable for many different applications. PANDA II uses an OSRAM ERF 15V/150W lamp with adjustable lamp brightness via controller and uses 14 gobos and 14 colourful glass filters, so the producing light beam is bright and sharp.


PANDA II will switch off the lamp automatically after 8 seconds of shutter, so it can effectively prolong the life of the lamp. The gobo/colour wheel rotating quickly can produce rainbow or strobe effect. In addition, you may use remote controller with a long distance to control the luminaires for shutter, strobe and fast/slow action to audio.

## SAFE USAGE OF THE PROJECTOR

### The following points are important for safety as well as for the smooth installation and performance of the unit

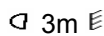
When unpacking and before disposing of the carton check there is no transportation damage before using the projector. Should there be any damage caused by transportation, consult your dealer and do not use the apparatus.

The projector is for Indoor use only, IP20. Use only in dry locations. Keep this device away from rain and moisture, excessive heat, humidity and dust. Do not allow contact with water or any other fluids, or metallic objects.

The projector is not designed or intended to be mounted directly on to inflammable surfaces. 

The projector is only intended for installation, operation and maintenance by qualified personnel.

The projector must be installed in a location with adequate ventilation, at least 50cm from adjacent surfaces. Be sure that no ventilation slots are blocked.

Do not project the beam onto inflammable surfaces, minimum distance is 3m. 

Avoid direct exposure to the light from the lamp. The light is harmful to the eye.

Do not attempt to dismantle and/or modify the projector in any way.

Electrical connection must only be carried out by qualified personnel.

Before installation, ensure that the voltage and frequency of power supply match the power requirements of the projector.

It is essential that each projector is correctly earthed and that electrical installation conforms to all relevant standards.

Do not connect this device to any dimmer pack.

Make sure that the power-cord is never crimped or damaged by sharp edges. Never let the power-cord come into contact with other cables. Only handle the power-cord by the plug. Never pull out the plug by tugging the power-cord.

Never run the projector without a lamp.

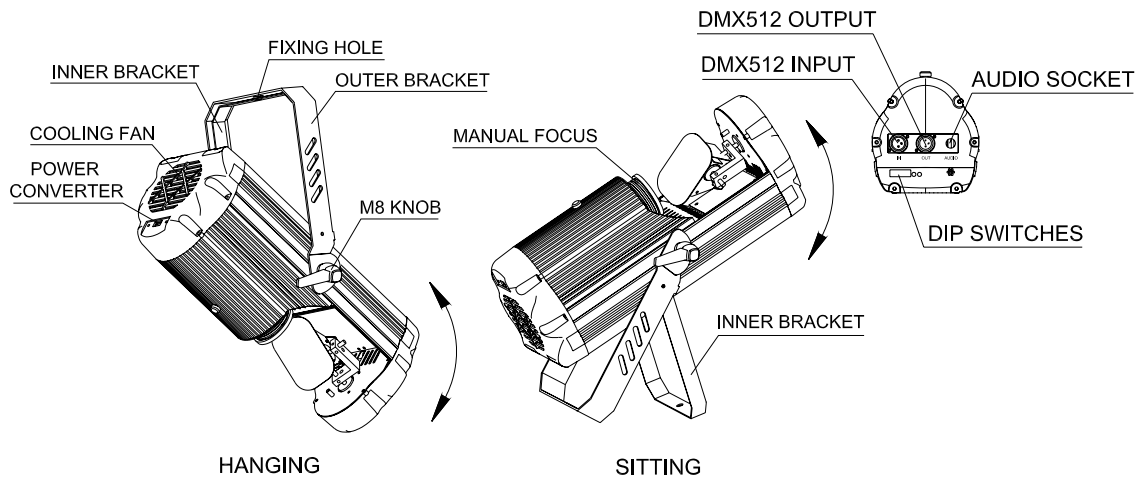
There are no user serviceable parts inside the projector, do not open the housing and never operate the projector with the covers removed.

Do not use any organic solvent, e.g. alcohol, to clean the lenses, dichroic colour filters, anti-heating glass, reflector mirror or housing of the projector.

**Always disconnect from the mains, when the device is not in use or before cleaning it or before attempting any maintenance work.**

If you have any questions, don't hesitate to consult your dealer.

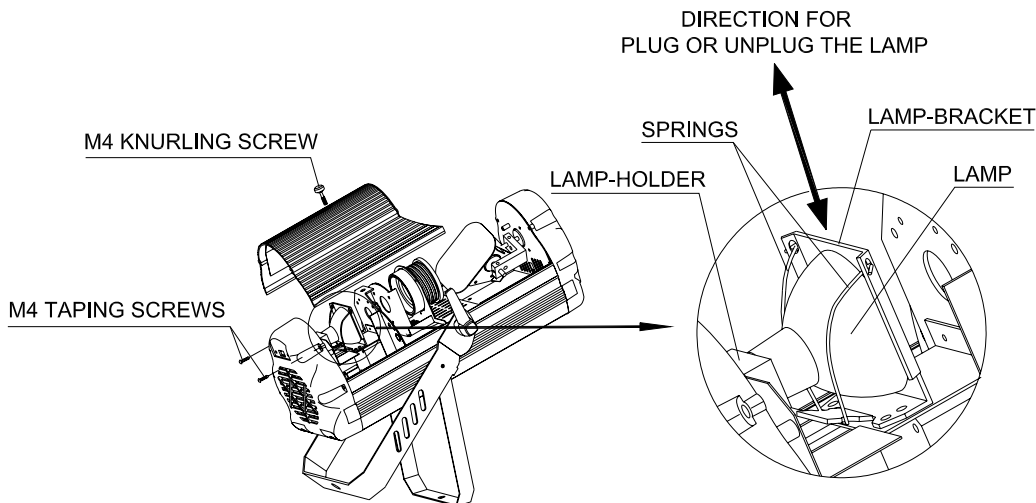
## INSTALLING THE PROJECTOR



There are two ways to install the projector either hanging the projector from the ceiling or sitting on the floor.

Mount the inner and outer brackets provided on the body of the projector. There are 2 M8 knobs provided to tighten the body of the projector and the two brackets. When you want to adjust the angle of the body of the projector, you only loosen the two M8 knobs carefully and then adjust the angle of the body. After finishing that, it is recommended that you don't forget to retighten the two M8 knobs. Always ensure that the projector is firmly positioned to avoid vibration and slipping. For suspending the projector always ensure that the structure to which you are attaching the projector is secure and is able to support a weight of 6kg for each PANDA II.

## FITTING THE LAMP



Remove the upper cover by loosening the 2 M4 taping screws and 1 M4 knurling screw. Insert an EFR 15V/150W lamp in the lamp porcelain holder. (When replacing a lamp, you should first pull out the old lamp from the lamp-bracket.)

Push the lamp into the position seat of the lamp-bracket carefully.

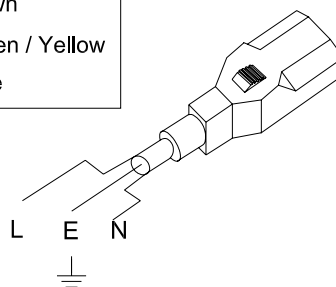
Install the upper cover again. (**Note:** Do not forget to connect the grounding-cord with the upper cover.)

Retighten the 2 M4 screws and 1 M4 knurling screw.

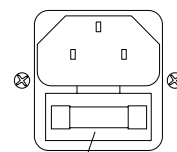
## POWER SUPPLY - MAINS

Use the plug provided to connect the mains power to the projector. Paying attention to the voltage and frequency marked on the panel of the projector. It is recommended that each projector is supplied separately so that they may be individually switched on and off. It is recommended that **the projector must be earthed correctly** and **the power convertor must be switched in the correct position.**

L = Brown  
E = Green / Yellow  
N = Blue



FUSE 4A/250V



FUSE HOLDER

## OPERATION

The projector may be operated in Stand-Alone mode or be linked with each other for multi-units for Master/Slave synchro mode or be controlled via standard DMX512 by a controller. And even you may use a remote controller to operate the projectors for shutter, strobe and fast/slow control. When the power is on, the projector will run self-test programmes. After finishing these, the projector is ready for operation.

### TO SET THE DIP SWITCHES

The 10 DIP switches of the PANDA II are with the numbers from 1 to 10, which may be set on the "ON" or "OFF" position. In Stand-Alone mode, the DIP switches may be set at random. But in Master/Slave synchro mode and Controller mode, you should set the DIP switches correctly. (How to set the DIP switches please refer to "Controller mode" and "Master/Slave synchro mode")

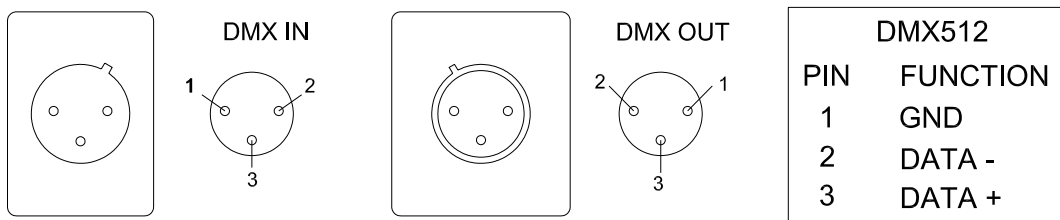
## STAND – ALONE MODE

Without connecting a controller with the projector, the projector will run in Stand-Alone mode with setting the DIP switches at random.

In Stand-Alone mode, the programmes having been set may be activated by sound via the MIC inside the projector. The projector will change the colours and gobos according to the rhythm of the music.

## XLR CONNECTORS AND TERMINATOR

### XLR CONNECTORS

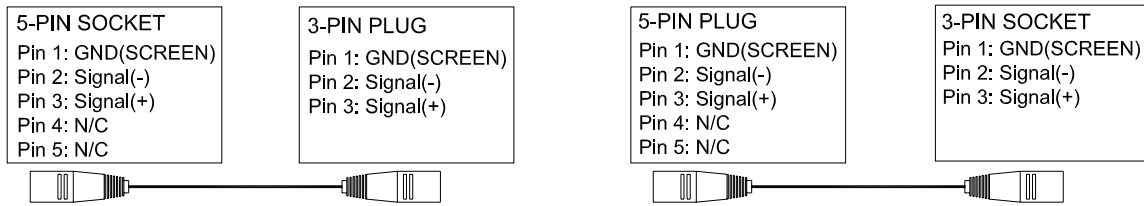


Connection between controller and projector and between one projector and another must be made with 2 core screened cable, with each core having at least a 0.5mm diameter. Connection to and from the projector is via cannon 3 pin XLR plugs and sockets which are included with the projector. The XLR's are connected as shown in the figure above.

Note, care should be taken to ensure that none of the connections touch the body of the plug or each other. The body of the plug is not connected in any way. The PANDA II accepts digital control signals in standard DMX512 (1990) format.

## 5-PIN AND 3-PIN CONVERSION

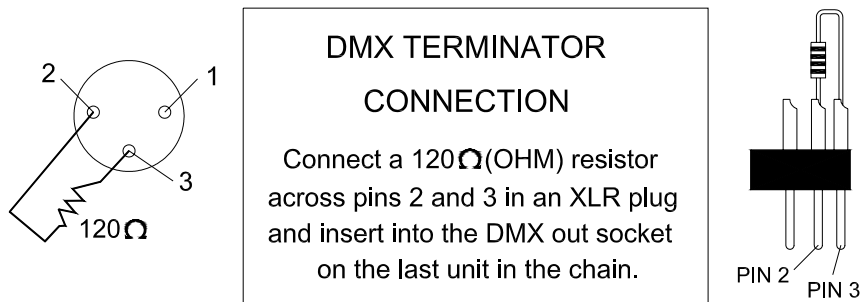
PANDA II uses 3-pin XLR plug / socket. If your controller uses 5-pin XLR plug / socket, you should convert 5-pin plug / socket into 3-pin socket / plug as shown below.



## DMX TERMINATOR

In the Controller mode or Master/Slave mode, the DMX output has to be connected with a DMX terminator at the last fixture in the chain. This prevents electrical noise from disturbing and corrupting the DMX control signals.

The DMX terminator is simply an XLR connector with a 120Ω (ohm) resistor connected across pins 2 and 3, which is then plugged into the output socket on the last projector in the chain. The connections are illustrated below.



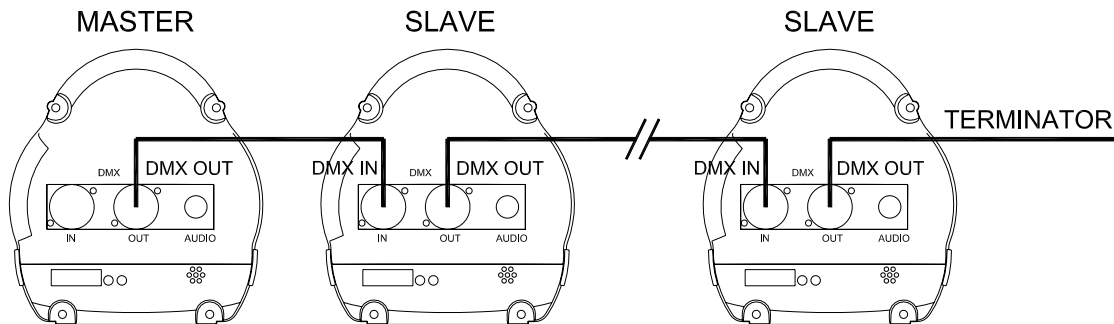
## MASTER / SLAVE SYNCHRO MODE

Without using the controller, many projectors can run synchronously by linking them with each other in the Master/Slave mode.

Select one projector as the master without connecting any cable to the projector's input, and set the DIP switches at random.

Regard the other projectors as the slaves, and set all No.1 DIP switches on the ON, and the other DIP switches on the OFF.

Connect the master's output to the first slave's input, and connect the first slave's output to the second slave's input. The rest may be deduced by analogy. Eventually connect the last slave's output to a DMX terminator as shown in the figure below.

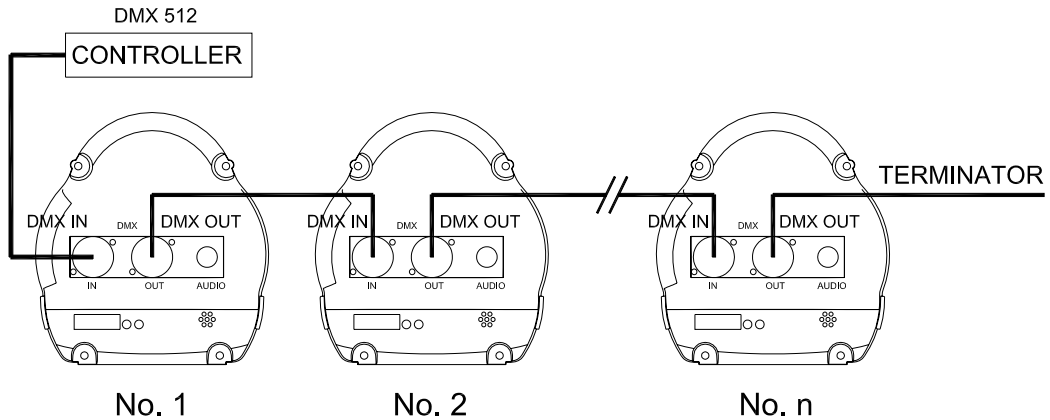


In the Master/Slave mode, the programmes having been set in the master may be activated by sound via the MIC inside the master, and all projectors will change colours and gobos synchronously according to the rhythm of music.

## CONTROLLER MODE – DMX 512 OPERATION

### CONNECTING CONTROLLER WITH PROJECTORS

Connect the controller's output to the first projector's input, and connect the first projector's output to the second projector's input. The rest may be deduced by analogy. Eventually connect the last fixture's output to a DMX terminator as shown in the figure below.



### DMX 512 CONTROL CHANNEL FUNCTIONS

PANDA II has 4 channels which may be activated by sound via MIC inside the projector or be separately controlled by the controller. They are listed in the following table.

CHANNEL	DMX VALUE	DESCRIPTION
1 COLOUR / GOBO	0-4	Black-out
	5-10	White
	11-71	Strobe adjust from slow to fast
	72-78	White / Clear
	79-86	Light blue / GOBO 1 (Circle)
	87-94	Pink / GOBO 2 (Little Circle)
	95-102	Blue and yellow / GOBO 3 (Ring)
	103-110	Light green / GOBO 4 (8-Circle)
	111-118	Ultraviolet / GOBO 5 (4-Sector)
	119-126	Violet / GOBO 6 (3-Bar)
	127-134	Light red / GOBO 7 (Swirl)
	135-142	Green / GOBO 8 (Crisscross)
	143-150	Light yellow / GOBO 9 (Multi-circle)
	151-158	Blue / GOBO 10 (Little rectangle)
	159-166	Red, green, yellow and blue / GOBO 11 (Multi-quadrangle)
167-174	Green and pink / GOBO 12 (4-bar)	
175-182	Yellow / GOBO 13 (Sunflower)	
183-190	Red / GOBO 14 (Pentacle)	
191-255	Rotation from slow to fast	
2 PAN	0-255	Pan movement from 0° to 175°
3 TILT	0-255	Tilt movement from 0° to 80°
4 DIMMER	0-255	Lamp brightness adjust from dark to bright

## TABLE OF DIP SWITCHES SETTING

Each projector must be given a DMX start address so that the correct projector responds to the correct control signals. The following table lists the setting codes of the address of the DIP switches, and the luminaires are from No.1 to No.256. Each luminaire has 10 DIP switches with the numbers of #1, #2, #3, #4, #5, #6, #7, #8, #9 and #10. **(For the PANDA II PR-2100B, set all #10 switches on the "OFF")**

In the table, "0" means the switch is on the "OFF", and "1" on the "ON".

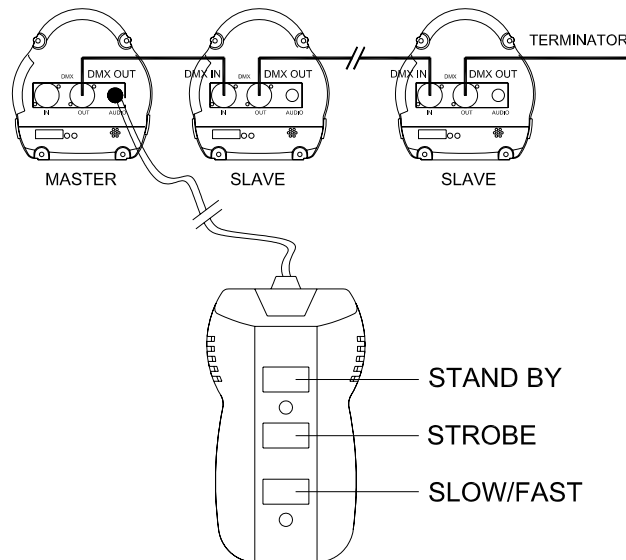
For example, if you want to look up the address setting of the No 50 luminaire, you will find the NO. 50 luminaire row (#1, #2, #3, #4, #5) with the codes of "1", "0", "1", "0", "0" and column (#6, #7, #8, #9) with the codes of "0", "1", "1", "0". So set the #1, #3, #7 and #8 switches on the "ON", and set the #2, #4, #5, #6, #9, and #10 switches on the "OFF".

Table of DIP Switches Setting					#9	0	0	0	0	0	0	0	0	1	1	1	1	1	1		
					#8	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	
0=OFF					#7	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
1=ON					#6	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
#1	#2	#3	#4	#5																	
0	0	0	0	0																	
1	0	0	0	0		1	9	17	25	33	41	49	57	65	73	81	89	97	105	113	121
0	1	0	0	0																	
1	1	0	0	0																	
0	0	1	0	0																	
1	0	1	0	0		2	10	18	26	34	42	50	58	66	74	82	90	98	106	114	122
0	1	1	0	0																	
1	1	1	0	0																	
0	0	0	1	0																	
1	0	0	1	0		3	11	19	27	35	43	51	59	67	75	83	91	99	107	115	123
0	1	0	1	0																	
1	1	0	1	0																	
0	0	1	1	0																	
1	0	1	1	0		4	12	20	28	36	44	52	60	68	76	84	92	100	108	116	124
0	1	1	1	0																	
1	1	1	1	0																	
0	0	0	0	1																	
1	0	0	0	1		5	13	21	29	37	45	53	61	69	77	85	93	101	109	117	125
0	1	0	0	1																	
1	1	0	0	1																	
0	0	1	0	1																	
1	0	1	0	1		6	14	22	30	38	46	54	62	70	78	86	94	102	110	118	126
0	1	1	0	1																	
1	1	1	0	1																	
0	0	0	1	1																	
1	0	0	1	1		7	15	23	31	39	47	55	63	71	79	87	95	103	111	119	127
0	1	0	1	1																	
1	1	0	1	1																	
0	0	1	1	1																	
1	0	1	1	1		8	16	24	32	40	48	56	64	72	80	88	96	104	112	120	128
0	1	1	1	1																	
1	1	1	1	1																	



## REMOTE CONTROLLER MODE

The optional remote controller is used in Master/Slave mode. When you insert the remote controller's plug into the master's AUDIO socket (as shown in the following figure), you may control all projectors for shutter / open (STAND BY button), slow / fast strobe movement (STROBE button) and slow / fast action to respond to music (SLOW/FAST button).



## MAINTENANCE

If the projector's lens becomes damaged or broken it should be replaced. If the lamp becomes damaged or deformed in any way it must be replaced. If the light from the lamp appears dim this would normally indicate that it is reaching the end of its life and it should be changed at once, old lamps run to the extremity of their life can explode. If the projector does not function, check the fuses on the power socket of the projector, they should only be replaced by fuses of the same specified value 4A/250V (fast blow, 5mmx20mm). On the main PCB inside the projector there is also a fuse rated 4A/250V (fast blow, 5mmx20mm). Should these be damaged call a qualified technician before replacement. The projector has thermal protection device that will switch off the projector in case of overheating, should either of these operate, check that the fans are not blocked, and if they are dirty clean them before switching on the projector again. Check that the fans are operational, if not call a qualified technician.

**Any maintenance work should only be carried out by qualified technicians.**

## KEEPING THE PROJECTOR CLEAN

To ensure the reliability of the projector it should be kept clean. It is recommended that the fans should be cleaned every 15 days. The lens and dichroic colour filters should also be regularly cleaned to maintain an optimum light output. **Do NOT use any type of solvent on dichroic colour filters.**

Cleaning frequency depends on the environment in which the fixture operates: damp, smoke or particularly dirty surroundings can cause greater accumulation of dirt on the unit's optics. A soft cloth and typical glass cleaning products should be used in cleaning. It is recommended to clean the external optics at least once every 20 days and clean the internal optics at least once every 30 / 60 days.

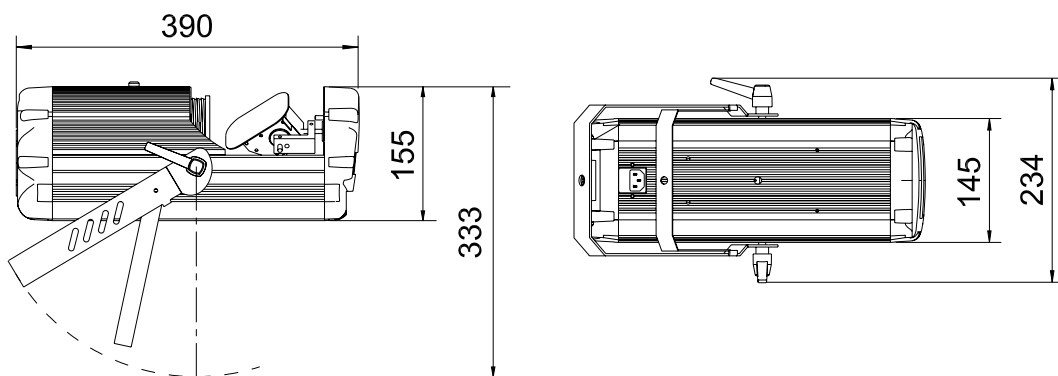
**Do not use any organic solvent, e.g. alcohol, to clean the lenses, dichroic colour filters, anti-heating glass, reflector mirror or housing of the projector.**

## TROUBLESHOOTING

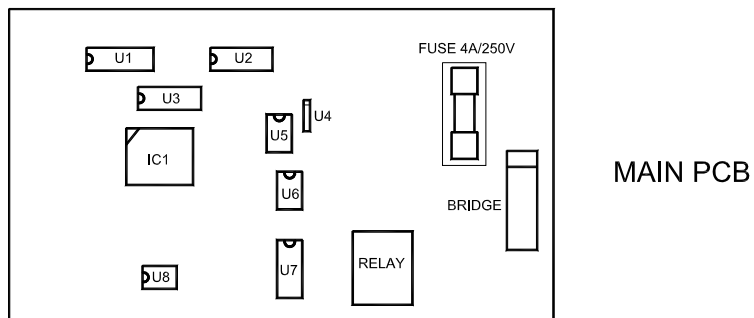
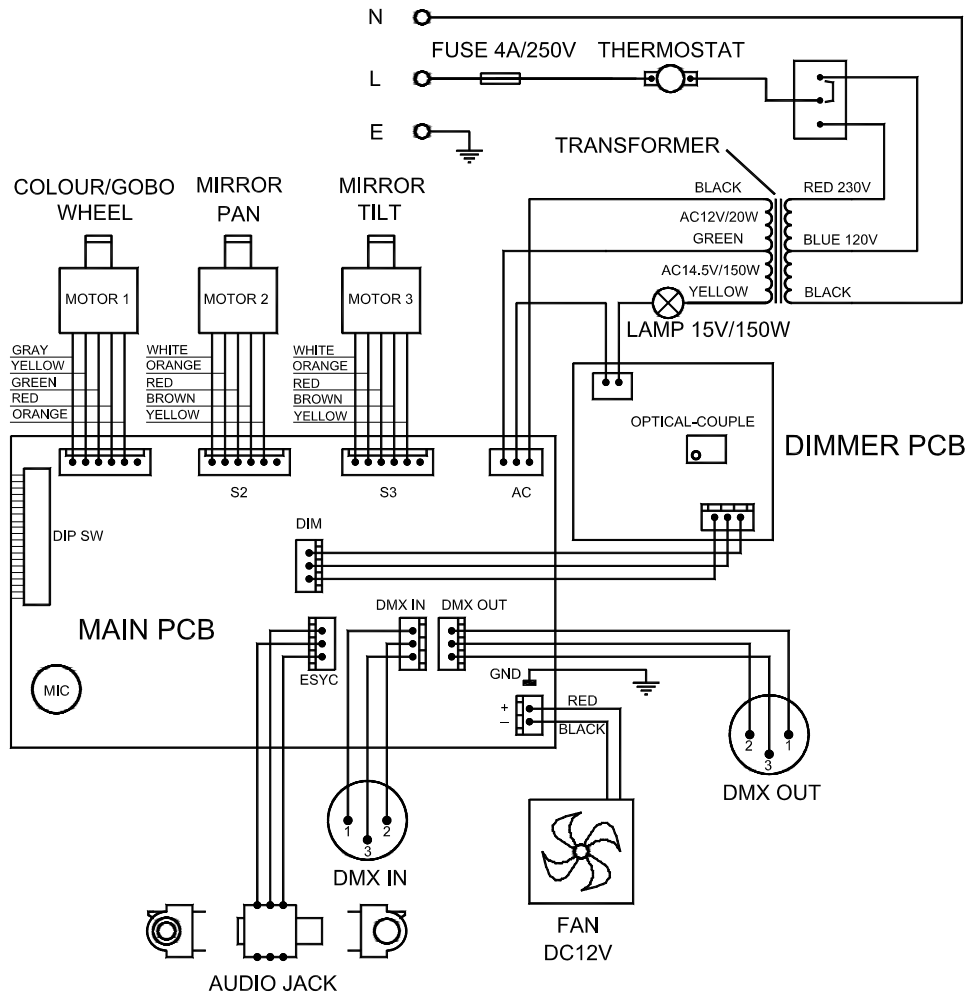
PROBLEM	RESOURCE
The projector does not start	Check the fuse on the socket is blown or not. Check if the lamp is good or not.
The projector switches on but does not answer to commands	Check setting the DIP switch is correct. Check the XLR cable is good.
The projector only functions intermittently	Check the fan is working and not dirty.
The beam appears dim	Check the lamp is not at the end of its life. Check the optics and anti-heat glass are clean.
Projection with halo	Carefully clean the lamp, the optical group lenses and anti-heat glass.
Defecting projection	Check the lenses are not broken. Remove dust or grease stored on lenses.

## TECHNICAL DATA

Power supply:	240V, 230V, 220V, 200V, 120V, 100V AC 50/60Hz To order
Power consumption:	180W at 220V
Lamp:	EFR 15V/150W
Channels:	4 channels
Control signal:	Standard DMX 512
Control mode:	Sound activation / Controller / Remote Controller
Running mode:	Stand-Alone mode / Master/Slave synchro mode / Controller mode
Colours / Gobos:	11 one-colour + 2 double-colour + 1 four-colour + white and rainbow effect / 14 gobos + clear
Mirror movement:	Pan movement 175°, Tilt movement 80°
Shutter/Strobe:	Shutter on gobo wheel for blackout and strobe, adjustable from 1~7 F.P.S.
Beam angle:	14.6°
Net weight:	6kg
Others:	Auto thermal cut-off / Adjustable lamp brightness / Manual adjustable focus / Auto switch off the lamp after 8 seconds of shutter



# ELECTRICAL DIAGRAM



## COMPONENT ORDER CODES

NAME	PART NO.	REMARK
TRANSFORMER	040050003	230V50Hz/120V60Hz
THERMOSTAT	190010054	95°C/10A
FAN	030060008	DC12V
LAMP	100040051	EFR 15V/150W
RELAY	192010018	
BRIDGE	150050012	8A/1000V
(COLOR/GOBO) MOTOR1	030040051	42BYGH036-10A
(MIRROR PAN) MOTOR2	030040050	42BYGH036-09A
(MIRROR TILT) MOTOR3		
OPTICAL-COUPLE	171000008	MOC3022
IC1	230040119	MICROPROCESSOR
U1~U3	170110002	DRIVER CHIPS
U4	170170034	RESET CHIP
U5	230040087	SPECIAL CHIP
U6	170170032	BUS CHIP FOR RECEIVING/TRANSMITTING
U7	170040001	TTL CHIP
U8	170050002	ARITHMETIC AMPLIFIER CHIP

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