

***f.a.l.***

# **NIGHT COLOUR PAN AUTO**

## **Instruction Manual**

model:

**PF 2964    NIGHT COLOUR PAN AUTO**

### **ATTENTION**

This instruction manual contains important information about the installation and use of the projector. Please read and follow these instruction carefully.

### **ATTENTION**

Always ensure that the power to the projector is disconnected before opening the projector or commencing any maintenance work.




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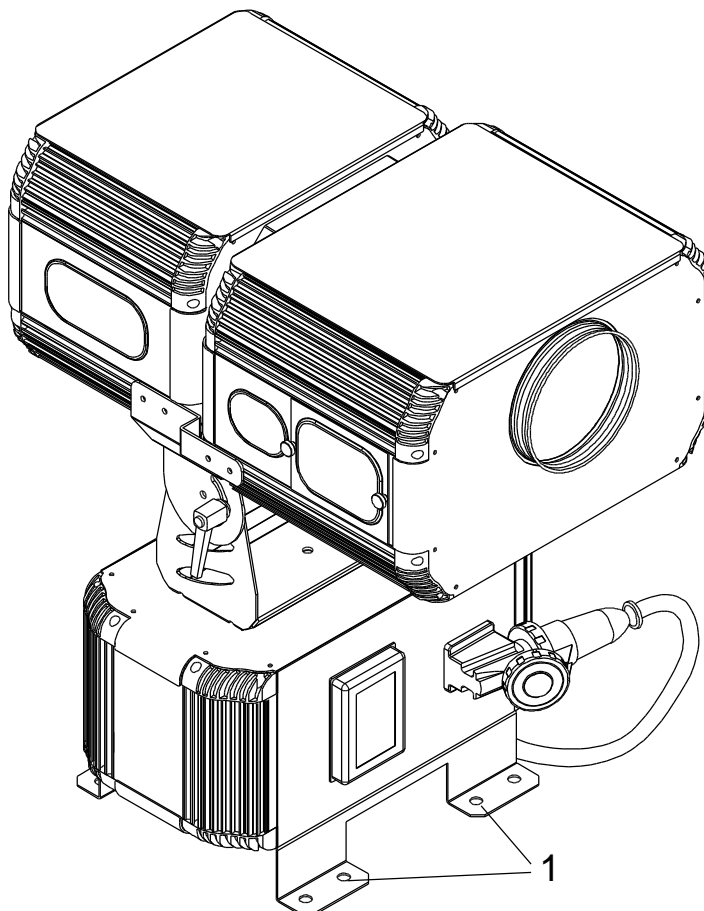
Please note that as part of F.A.L.'s ongoing commitment to continuous product development, specifications are subject to change without notice. Whilst every care is taken in the preparation of this manual F.A.L. reserves the right to change specifications in the course of product improvement. The publishers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

## 01 – SAFE USAGE OF THE PROJECTOR

- ✓ Do not attempt to dismantle and modify the projector.
- ✓ Do not allow contact with water or any other fluids, or metallic objects (IP 44).
- ✓ Do not install the projector in areas of high humidity.
- ✓  Not allowed to be mounted directly on inflammable surfaces.
- ✓ Keep at least 0.5m distance between the projector and adjacent inflammable surfaces.
- ✓ The lighting apparatus must be used only with its protective shield.
- ✓ Protective grill, lenses, U.V. filters should be replaced if they are visibly damaged to the point at which their effectiveness is diminished, for example by becoming cracked or deeply scratched.
- ✓ The lamp must be replaced if it becomes damaged or deformed by heat.
- ✓  5 m  Keep at least 5m between the lamp and the illuminated surfaces.
- ✓ Avoid direct exposure to the light from the lamp. The light is harmful to the eye.
- ✓ Note:- The lamp reaches very high temperatures, allow at least 10 minutes for the lamp to cool completely before attempting to handle it.
- ✓ To ensure the reliability of the projector, it is recommended that the fans should be cleaned every 15 days. The lens, reflector and dichroic colour filters should also be regularly cleaned to maintain an optimum light output (at least every 2 months).
- ✓ Check periodically the packings and replace them if damaged.

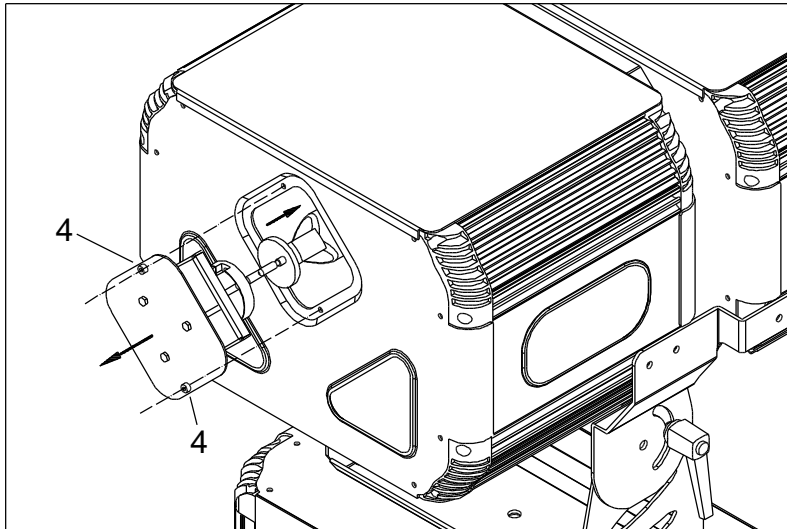
## 02 – INSTALLING THE PROJECTOR

Position the projector as required and fix to the ground via the fixing holes (1) as shown below.



### 03 – FITTING THE LAMP

Open the lamp access hatch by undoing the screws (4). Insert the 1200 MSR SE or 1200 MSD lamp in the lamp holder as shown below. Close the lamp access hatch. Do not touch the glass part of the lamp with your fingers. Care should always be taken when handling these lamps. Always read the manufacturers "Instructions for use" enclosed with the lamp. Please read carefully the section regarding adjusting the lamp alignment.



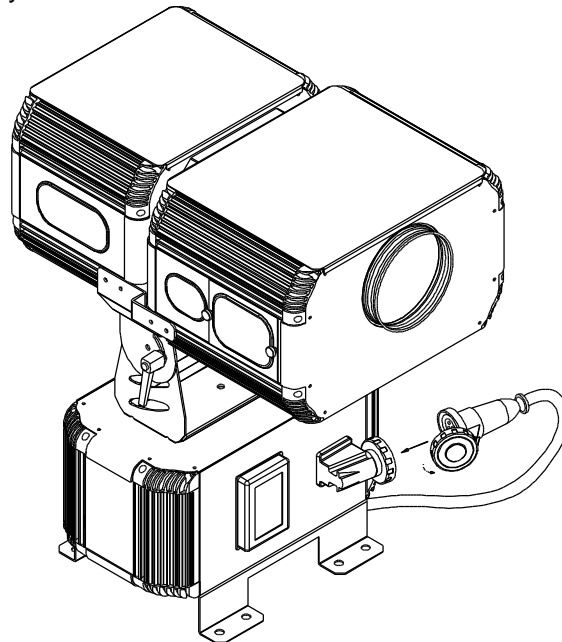
### 04 – POWER SUPPLY MAINS

Use the plug provided to connect the mains power to the projector paying attention to the voltage and frequency marked on the back panel of the projector. It is recommended that each projector is supplied separately so that they may be individually switched on and off.

L = Brown

E = Yellow / Green

N = Blue



#### **IMPORTANT**

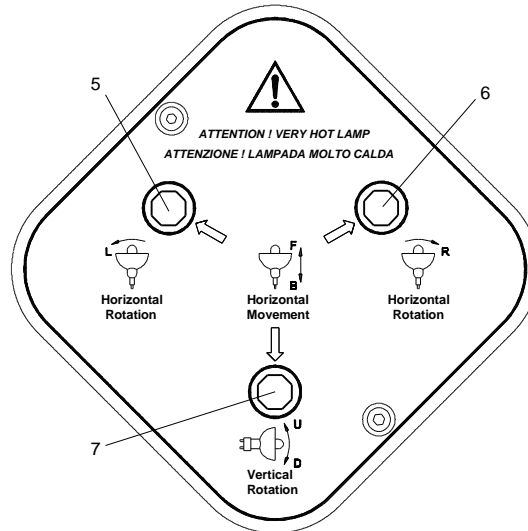
It is essential that each projector is correctly earthed and that electrical installation conforms to all relevant standards. Power consumption of the Night Colour Pan Auto is 1900VA at 230V.

#### **WATCHDOG SYSTEM**

When the projector is switched on the electronics perform a reset, this function rotates the internal motors thus allowing the microprocessor control system to register the positions of all motors under its control. When the lamp strikes and "fires up" it can create a certain amount of electrical noise within the projector that has the potential to disturb the microprocessor. The Night Colour Pan Auto is fitted with an electronic watchdog system that monitors the microprocessor and will initiate a reset if the functioning of the microprocessor has been disturbed. This system ensures that the reset is performed successfully and that once completed the projector is ready to receive control instructions and operate without problem.

## 05 – ADJUSTING THE LAMP ALIGNMENT

When fitting a new lamp it will often be necessary to adjust the lamp alignment to obtain an even distribution of light within the beam. Using a 7mm spanner the three adjustment bolts (5, 6 and 7) located on the back of the lamp holder, may be gently turned to centre the lamp within the reflector. The projector should be switched on with the shutter open and the beam focused to do this, it is also advisable to allow the lamp 5 minutes to come up to full brightness before starting to align it. Note: the three adjustment bolts will only need a small adjustment to centre the lamp, do not try to unscrew them completely. You should adjust the lamp so that the “hot spot”, the brightest point of the beam, is in the centre of the beam. Read the rest of this manual and then come back to this section to align the lamp.

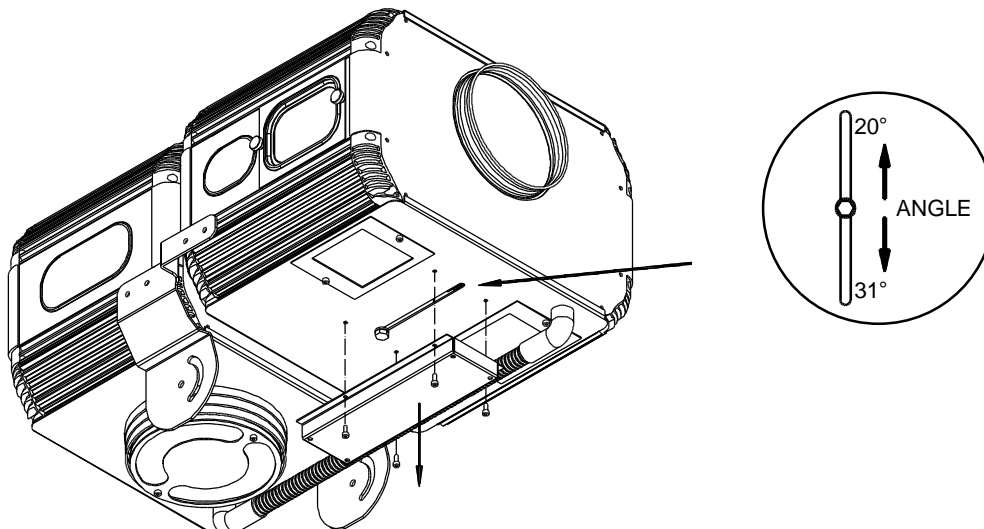


## 06 – FUNCTIONS

The Night Colour Pan may be rotated through up to 340° in the horizontal axis (pan). It can project up to 4 gobos of Standard M Size (66mm outer diameter, 49.5mm image diameter, and a maximum thickness of 2mm in material highly resistant to heat.) The Night Colour Pan Auto also has a colour wheel fitted with 7 dichroic colour filters. Strobe effects and dimming from 0 to 100% is provided by 2 symmetrical shutter blades. The beam from the Night Colour Pan Auto may be manually zoomed between 20° and 31°, focus is motorised and is, together with the other functions of the Night Colour Pan Auto, controlled by standard DMX 512.

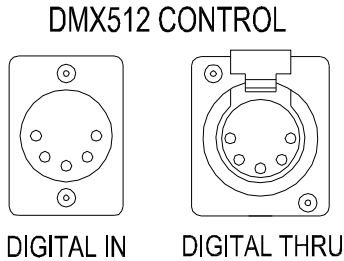
## 07 – ZOOM

The Night Colour Pan Auto has an integral zoom system allowing beam adjustment between 20° and 31°. Remove the zoom controls cover from under the front of the projector by undoing the four retaining screws. Loosen the screw using a 10mm spanner and move the zoom controls until the required image/beam size is achieved (focus is motorised and controlled by DMX). Replace the zoom controls cover carefully making sure that the waterproof seal is maintained.



**08 – CONTROL CONNECTIONS (without Autobox)**

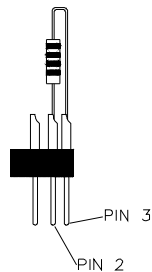
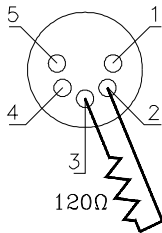
The Night Colour Pan Auto can accept digital control signals in DMX512 (1990) format. Connection between controller and projector and between one projector and another must be made with 2 core screened cable, with each core having at least a 0.5mm diameter. Connection to and from the projector is via cannon 5 pin XLR plugs and sockets which are included with the projector. The XLR's are connected as shown in the table below. 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. See the following section regarding how to connect the cables and maintain the waterproof seal.



DMX 512 SIGNAL	
PIN	FUNCTION
1	GND
2	DATA -
3	DATA +
4	N.C.
5	N.C.

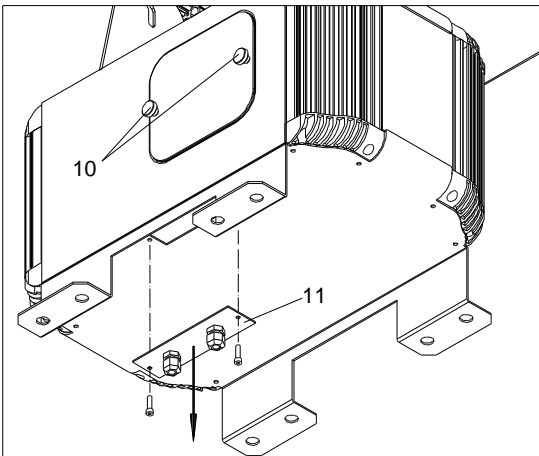
**DMX TERMINATION**

For all installations having long signal cables or in the presence of electrical noise, for example a discotheque, it is recommended practice to use a DMX terminator: this assists in preventing corruption of the digital control signal by external noise. 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 DIGITAL THRU socket on the last projector in the chain. The connections are illustrated below.



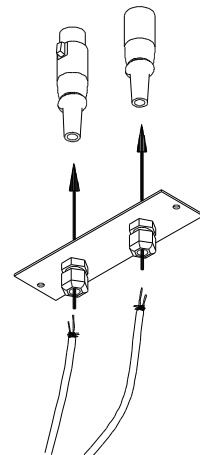
**DMX TERMINATOR CONNECTOR**  
 Connect a 120Ω resistor across pins 2 and in an XLR plug and insert into the DIGITAL THRU socket on the last unit in the chain.

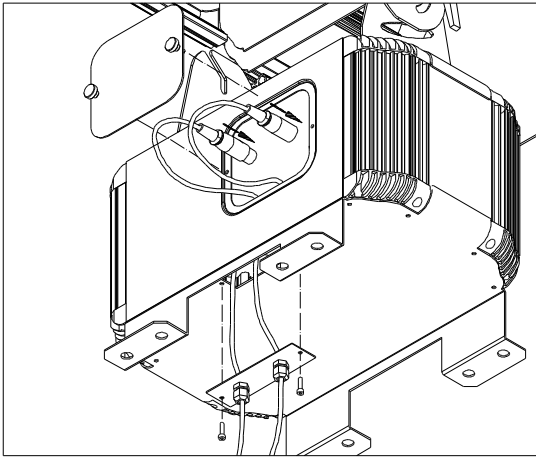
**TO CONNECT THE DMX CONTROL CABLES TO THE PROJECTOR**



Open the connector cover plate (10) located on the side of the base of the projector, by undoing the two knurled nuts. Open also the cable gland plate (11) located on the underside of the projector, by undoing the two retaining screws.

The DMX cables should be passed through the cable glands as shown, and then the XLR plug and socket should be attached to the cables as shown in the table. Care should be taken that you connect the correct cable to the correct connector, female for the incoming signal (DIGITAL IN) and male for the outgoing signal (DIGITAL THRU).





Route the cables and connectors as shown then close the covers carefully to maintain the waterproof seal. If the DMX signal arrives correctly at the projector, the Status LED will show constant green.

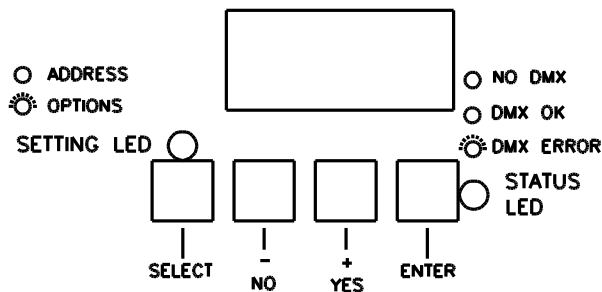
## 09 – PROJECTOR ADDRESSES

The Night Colour Pan Auto is controlled with 6 DMX channels (7 in High Resolution mode). Each projector must be given a digital start address number so that the correct projector responds to the correct control signals. This digital start address is the channel number from which the projector starts to “listen” to the digital control information being sent out from the controller. This digital encoding must be done on each projector.

Press the SELECT button located on the side panel towards the front of the projector, and the SETTING LED will light red. By using the + and - buttons the required address number can be set on the main display (for example, projector 1 address 1, projector 2 address 8, projector 3 address 15, etc.). Confirm the address chosen by pressing the button marked ENTER two times. (After few minutes the SETTING LED will show green). Once you have set the DMX start address replace the protective cover taking care to maintain the waterproof seal.



PRESS "SELECT" TO ENTER MODIFY MODE  
PRESS "ENTER" TO CONFIRM THE CHANGE



## 10 – SETUP OPTIONS

There are 16 set-up options on the projector. Pressing the SELECT button twice will bring you to option 1 and the main display will show 1 NO, or 1 Y, depending on what was previously set. The SETTING LED will flash red. Pressing the SELECT button again will take you to option 2, then 3 and so on.

### Option 1 – FIXED COLOUR POSITIONS

Set option 1 to 1 Y using + and - buttons and confirm your selection by pressing the red ENTER button twice, the colour wheel will stop at only full colour positions. With this option ON, the colour wheel can not be stopped at intermediate positions.

### Option 2 – FIXED COLOUR AND BI-COLOUR POSITIONS

This option works together with option 1 which needs to be set to 1 Y. Set option 2 to 2 Y using + and - buttons and confirm your selection by pressing the red ENTER button twice; the colour wheel will stop at only full colour and half colour positions. With this option ON, the colour wheel can not be stopped at intermediate positions.

### Option 3 – SHUTTER ON GOBO CHANGE

Set option 3 to 3 Y using + and - buttons and confirm your selection by pressing the red ENTER button twice; the shutter will now close while the gobo changes.

**Option 4 – SHUTTER ON COLOUR CHANGE**

Set option 4 to 4 Y using + and - buttons and confirm your selection by pressing the red ENTER button twice; the shutter will now close while the colours change.

**Option 5 – REVERSE PAN**

Set option 5 to 5 Y using + and - buttons and confirm your selection by pressing the red ENTER button twice; the direction of pan movement will now be inverted.

**Option 6 – NOT USED****Option 7 – HIGH RESOLUTION PAN POSITIONING**

Set option 7 to 7 Y using + and - buttons and confirm your selection by pressing the red ENTER button twice, the projector will now use 7 channels of DMX control. The new extra channel (Channel 7) will function together with channel 5 to provide high resolution pan position accuracy.

**Option 8 – TEST**

Set option 8 to 8 Y using + and - buttons and confirm your selection by pressing the red ENTER button twice, this is a function used during manufacture for alignment to position all motors that have a mechanical end stop.

**REMEMBER** The projector will **not** respond to DMX control signals when this option is activated.

**Option 9 – PROJECTOR MASTER**

Set option 9 to 9 Y using + and - buttons and confirm your selection by pressing the red ENTER button twice; the projector will now operate in automatic mode (stand alone) as a master.

**Option 10 – PROJECTOR SLAVE**

Set option 10 to 10 Y using + and - buttons and confirm your selection by pressing the red ENTER button twice; the projector will now operate in automatic mode (stand alone) as a slave.

**Option 11 – SYNCHRONIZATION SIGNAL**

Set option 11 to 11 Y or to 11 NO using + and - buttons and confirm your selection by pressing the red ENTER button twice to choose the synchronization mode between master and slaves; option 11 is associated to option 10 (see Stand alone operation section).

**Option 12 – NOT USED****Option 13 – DISPLAY BRIGHTNESS**

Set option 13 to 13 Y using + and - buttons and confirm your selection by pressing the red ENTER button twice; the brightness of the display will be reduced to approximately 25%.

**Option 14 – INVERT DISPLAY**

Set option 14 to 14 Y using + and - buttons and confirm your selection by pressing the red ENTER button twice; the display will be inverted (upside down).

**Option 15 – LAMP TIME METER**

Set option 15 to 15 Y using + and - buttons and confirm your selection by pressing the red ENTER button twice; the hour counter will be activated. To read the time elapsed since the Lamp Time Meter was activated, press and hold the ENTER button. To zero (reset) the Lamp Time Meter, press and hold the SELECT button while the projector is turned on. Once the projector has started, check the counter has been zeroed by pressing and holding the ENTER button.

NOTE the Lamp Time Meter shows the hours in multiples of ten (10). For example 025 in the display means 25 x 10 which equals 250 = 250 hours.

**Option 16 – NOT USED**



## 11 – STAND ALONE OPERATION (MASTER AND SLAVE - Automatic operation)

For stand alone operation there are three (3) options that need to be set to determine if the unit will be a Master or a Slave, which of the pre-programmed internal automatic sequences it will run, and how the Slave units synchronise with the Master unit. All projectors that you wish to synchronise need to be connected together from the unit designated Master with standard DMX cables.

### TO SET STAND ALONE OPERATION - MASTER

Set option 9 to 9 Y; after few seconds the display will change to show SA 1 which means the projector is now a Master and is in stand alone mode 1 (sequence 1). If another number is shown, it is the last auto sequence that was set. There are four (4) pre-programmed automatic sequences to choose from. If you press the SELECT button again the Options LED will light and you will be able to use the + and - buttons to change the sequence selected. The display will show SA 1, SA 2, SA 3, or SA 4 depending on what you select. Press the button marked ENTER to confirm your selection.

The Option LED will remain lit for a few seconds, during which time you can make another change to the sequence selected if you chose the wrong one. Once the Options LED has switched off, you need to press the SELECT button again to activate the possibility of changing the sequence number.

### TO SET STAND ALONE OPERATION - SLAVE

Set option 10 to 10 Y; after few seconds the display will change to show SL 1 which means the projector is now a Slave and is in stand alone Slave mode 1 (sequence 1). If another number is shown, it is the number of the last auto sequence that was set.

The Slave units can be set to a different sequence from the Master if desired. If the display shows SA it means that you have Option 9 set to 9Y and the unit is still configured as a Master. For the projector to function as a Slave, Option 9 must be set to 9 NO.

There are four (4) pre-programmed automatic sequences to choose from.

Press the SELECT button again and the Options LED will light and you will be able to use the + and - buttons to change the sequence selected. The display will show SL 1, SL 2, SL 3, or SL 4 depending on what you select. Press the button marked ENTER to confirm your selection.

The Option LED will remain lit for a few seconds, during which time you can make another change to the sequence selected if you chose the wrong one. Once the Options LED has switched off, you need to press the SELECT button again to activate the possibility of changing the sequence number. These 4 sequences are in fact identical to the 4 sequences available with the projector configured as a Master, the difference is that the Slave unit(s) will wait for a synchronisation signal from the Master unit before advancing a step.

### HOW THE SLAVE UNITS SYNCHRONISE WITH THE MASTER

The Slave units can synchronise in 2 different ways with the Master unit. You can choose to have all units synchronised on the same step, so for example if the Master is on step 1 of any of the 4 sequences, the slaves will all also be on step 1 of whichever of the 4 sequences they were set to. When the Master is on step 2 the Slaves will also be on step 2, and so on. Or alternatively, you can choose to have only the changing of a step to another synchronised, which means that it does not matter which step any unit is on, when the Master advances a step the Slaves will also advance a step, but they need not all be on the same step number of whichever sequence they were set to.

The synchronisation is achieved very simply. The Master unit transmits a DMX signal on DMX channels 1 and 2. The signal on channel 1 is usually at 0 (zero); when the Master unit advances a step in the selected auto sequence, it sends a DMX level of 255 on channel 1 for a period of 500 milliseconds. When the Slave unit(s) receive this they will advance one step of their selected auto sequence. They may or may not be on the same step number of the sequence as the Master but they will advance a step together with the Master.

The DMX signal on channel 2 is slightly different. The Master sends a DMX level on channel 2 which corresponds to the number of the step in the sequence. So if the Master is on step 10 of the sequence, for example, it will be sending DMX level 10 on channel 2. The Slave units set to listen to this channel will replay the step corresponding to the received DMX level. In this way the Slave always knows which step the Master is on and in the example will replay step 10 of the sequence.

The advantages of this flexibility are that you could have, for example, all units set to the same sequence number and synchronised to be on the same step number, and in this way all units will be projecting exactly the same colours with each step of the sequence.

Alternatively you could have one Slave set to synchronise step numbers with the Master unit and another set to synchronise only the changing of steps, and in this way have 2 projectors always the same colours and a third projector always a different colour but still changing its colour at the same time as the other 2 projectors.

This system also means that you can use a suitably programmed controller synchronise units replaying their automatic sequences together with other projectors replaying sequences programmed in the controller. You could also use a controller to call individual steps from the auto sequences in the projectors.

*To select which mode of synchronisation you require, you need to set Option 11 on the projectors you have designated as Slaves.*

With Option 11 set to no (11 NO) the Slave(s) will synchronise with the Master via DMX channel 1 and the 500 millisecond pulse of DMX level 255 which the Master sends each time it advances a step. The time between steps is determined by the sequence being run on the Master projector. It is therefore recommended that the slowest sequence should be run on the Master to avoid cutting short the steps on the Slaves to which it is connected.

With Option 11 set to yes (11 Y) the Slave(s) will follow the DMX level information being sent on DMX channel 2. All projectors that are connected will then follow step for step the same step number as is being replayed on the Master.

As mentioned above it is your choice as to whether all projectors are running the same auto sequence, but whichever sequence they are running they will all be at the same step number within their respective sequences. If the auto sequences selected are different and if they were to have a different number of steps, the sequence will continue to cycle on both Master and Slave(s) until the DMX level sent by the Master returns to 0 (zero) when all Slaves will again return to step 1 in their sequences together with the Master.

**NOTE:** To allow the automatic programs to function correctly it is recommended that Options 1 and 2 are set to NO.

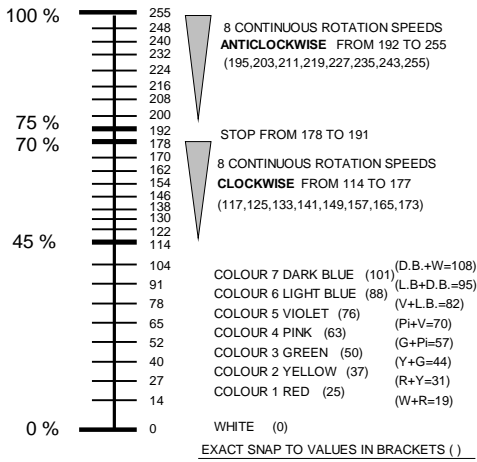
**ONLY ONE PROJECTOR SHOULD BE SET AS MASTER IN ANY CHAIN OF PROJECTORS.**

**12 – DMX CHANNELS**

<u>Channel</u>	<u>Function</u>
1	Colours
2	Gobos wheel
3	Gobo rotation
4	Dimmer - Shutter
5	Pan
6	Focus
7	Pan Fine

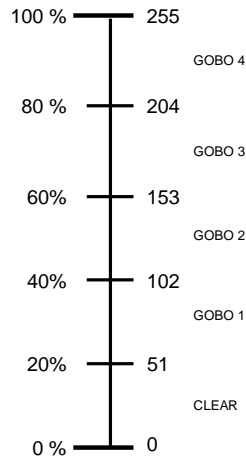
With option "high resolution" YES

**CHANNEL 1 – COLOUR WHEEL**



Control values for **Colour Wheel**, in DMX units.

**CHANNEL 2 – GOBO WHEEL**

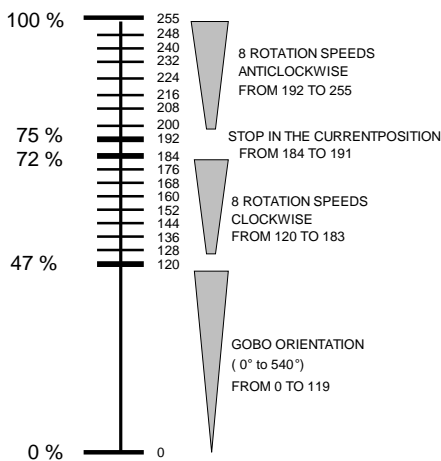


Control values for **Gobo Wheel**, in DMX units.

**REMOTE REQUESTED RESET - SOFT RESET**

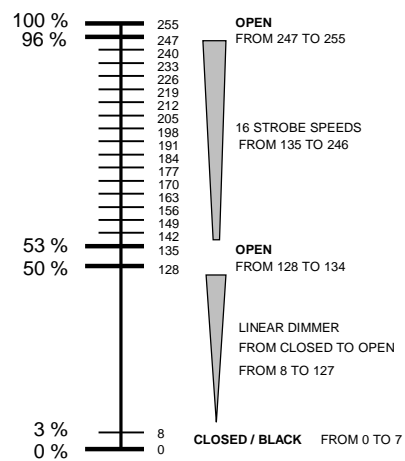
If the DMX value sent on channel 1 stays in the range from 4 to 6 for more than 6 seconds, the projector will start a reset sequence (Remote Requested Reset). The electronics are re-started and all motors moved to their home positions exactly as they do when the power is first switched on but the lamp is not switched off in this sequence.

**CHANNEL 3 – GOBO ROTATION**



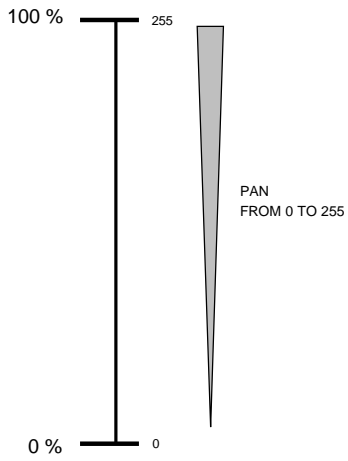
Control values for **Gobo Rotation**, in DMX units.

**CHANNEL 4 – DIMMER, SHUTTER**



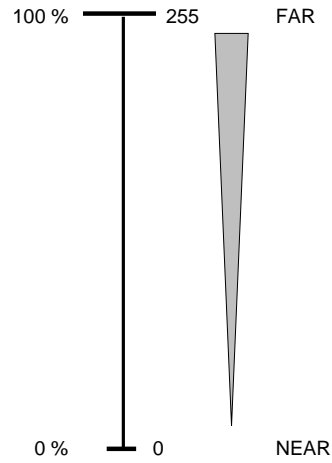
Control values for the **Dimmer, Shutter**, in DMX units.

**CHANNEL 5 – PAN**



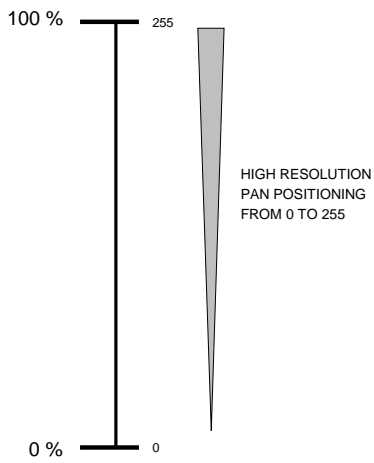
Control values for **Pan**,  
in DMX units.

**CHANNEL 6 – FOCUS**



Control values for **Focus**,  
in DMX units.

**CHANNEL 7 – HIGH RESOLUTION**



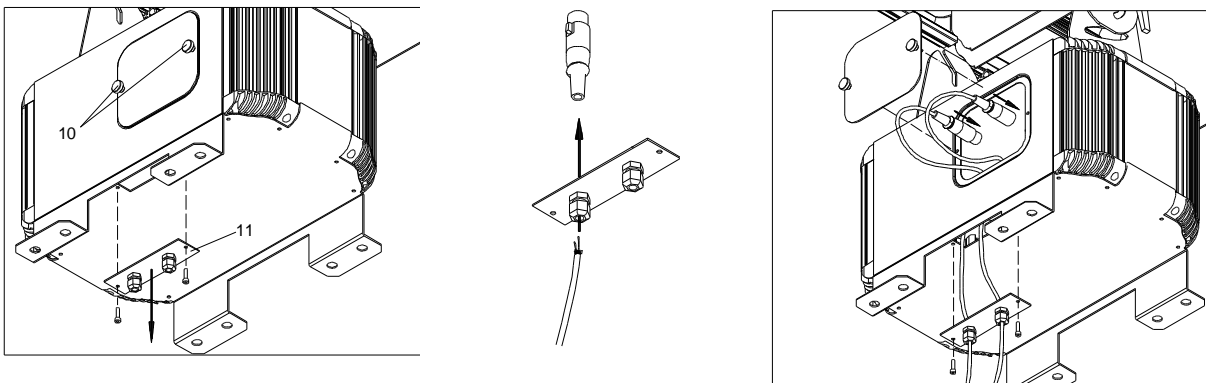
Control values for **Pan Fine**,  
in DMX units. Only applicable if Option 7 is YES.

## 13 – AUTOBOX

Autobox is a device programmable via a DMX signal and is itself a DMX generator. This device is then able to record programs and playback them. During the playback it is possible to modify some parameters to optimise the functioning. Autobox can store up to 10 programs, each program with 40 step maximum and 10 DMX channels per step. You can choose to run one 40-step program or run all the stored programs in sequence, resulting in a single 400-step program.

### INSTALLING AUTOBOX

Remove the bottom hatch, connect the DMX cable and the power mains, fix the Autobox to the power unit. If other projectors are connected to the same Autobox, you have to connect even the DIGITAL THRU to the DIGITAL IN of the next projector before closing the hatch, as explained in section 08.



## 14 – PROJECTOR ADDRESSES (with Autobox)

Each projector must be assigned the address 1 to allow the Autobox control. See section 09.

## 15 – INDICATORS AND BUTTONS

### DISPLAY

3-digits 7-segments display: shows the step number in execution.

### KEYBOARD

<UP>, <DOWN>, <MEMO>: keys used to modify the parameters.

<TEST>: used for programming via DMX controller.

<FUNCT>: displays the active function code: a) "001" test cycle, b) "005" programming via PC.

<MASTER>: general control of DMX level, variable from 0 (minimum) to 255 (maximum); this value could be modified by pressing UP and DOWN buttons.

<FADE TIME>: indicates the time it takes to change from the old DMX value to the next; 0 means instantaneous change, 255 varies the DMX level within some seconds.

<RANDOM>: random mode: the steps of the program are executed in a random order.

<DELAY>: this parameters determines the minimum time that must elapse between one music trigger pulse and the next.

<TRIGGER>: allows a step change only after a fixed number of music pulses; if this value is set to 1, there is a step change every music pulse; if it is for example 4, the projectors will move every 4 pulses.

<CHASE SELECT>: changes the program number between the 10 available, from 0 to 9.

## 16 – CONFIGURATION OPTIONS

There are several operating modes, depending on the various options. In particular, it is possible to choose the desired program proceeding (automatic or time dependent) and the program type (40-step or 400-step program).

To modify the options, it is recommended to do the following steps:

1. Press and hold <UP> and <DOWN> buttons for at least 4 seconds.
2. The display will show "COS" (constants zone).
3. Press <MASTER>.
4. The display will show the previous setting, which is represented by a number from 0 to 3 with the following meaning:
  - 0 = 40-step program with music trigger
  - 1 = 40-step program with automatic trigger
  - 2 = 400-step program with music trigger
  - 3 = 400-step program with automatic trigger
5. Press <UP> or <DOWN> until the new desired setting is reached.
6. press <MEMO> to confirm your choose, the device returns to default mode.

## 17 – PROGRAMMING

### PROGRAMMING VIA A DMX CONTROLLER

It is possible to program the 10 DMX channels of each step in the 40-step program:

1. Press <TEST> to activate the programming via controller mode.
2. Connect the controller to the socket in the projector using a simple DMX cable (see previous sections).
3. The display will show "000", indicating that step 0 of the current program is to be modified.
4. Press <UP> or <DOWN> until the number of step you wish to modify is displayed.
5. Move the sliders on the DMX controller to reach the desired settings.
6. Press <MEMO> to confirm; the display will flash briefly indicating that the step has been stored. Attention: if you do not press <MEMO>, the new settings will be lost.
7. Repeat points 4 to 6 to modify the settings of other steps.
8. Press and hold <MEMO> for more than 5 seconds to exit the programming mode.
9. If during the previous operations you do not program all the 40 (or 400) steps, you have to mark the last step. Read as follows.

### DEFINING THE NUMBER OF STEPS IN A SEQUENCE

When you have finished the programming, it is indispensable to select the last step in the sequence.

Press <RANDOM>; with <UP> and <DOWN> keys scroll the step numbers until the desired one is displayed. Store your choice by pressing <MEMO>.

Now the projector will execute all the steps from the first to the marked one and then will restart from the first step.

### PROGRAMMING AUTOBOX VIA PC SERIAL PORT

1. Turn on the PC.
2. Press <FUNCT> button.
3. Press <UP> button until the display will show "005", then press <MEMO>.
4. The display will show "trn" (waiting for data).
5. Connect Autobox to the PC serial port with the appropriate cable (not included).
6. Connect the RS232/RS2485 converter (not included) to the power mains.
7. Run CONVERT.EXE (not included) on the PC.
8. Digit the filename containing the programs table. The .TAB extension could be omitted.
9. Confirm the transmission of data to serial port.
10. Select the correct serial port number.
11. Now the communication has been started and the display will show a progressive number.
12. If everything has gone correctly, at the end of this operation the display will show "End"; remove the power supply to return to default mode.
13. If the display shows "EEE" (Tx/Rx error), the received data are not considered valid by Autobox: check the power cable is connected correctly and then repeat the points from 7 to 10. If the error will persist, contact your technical support.

### AUTOMATIC TRIGGER MODE

The system operates without the external audio input. Do the following steps.

1. Press <UP> and <DOWN> to enter in the constants.
2. Press <MASTER> and set the value 01.
3. Press <MEMO>.

An internal clock is now activated, which scans the programmed steps automatically. To vary the trigger speed:

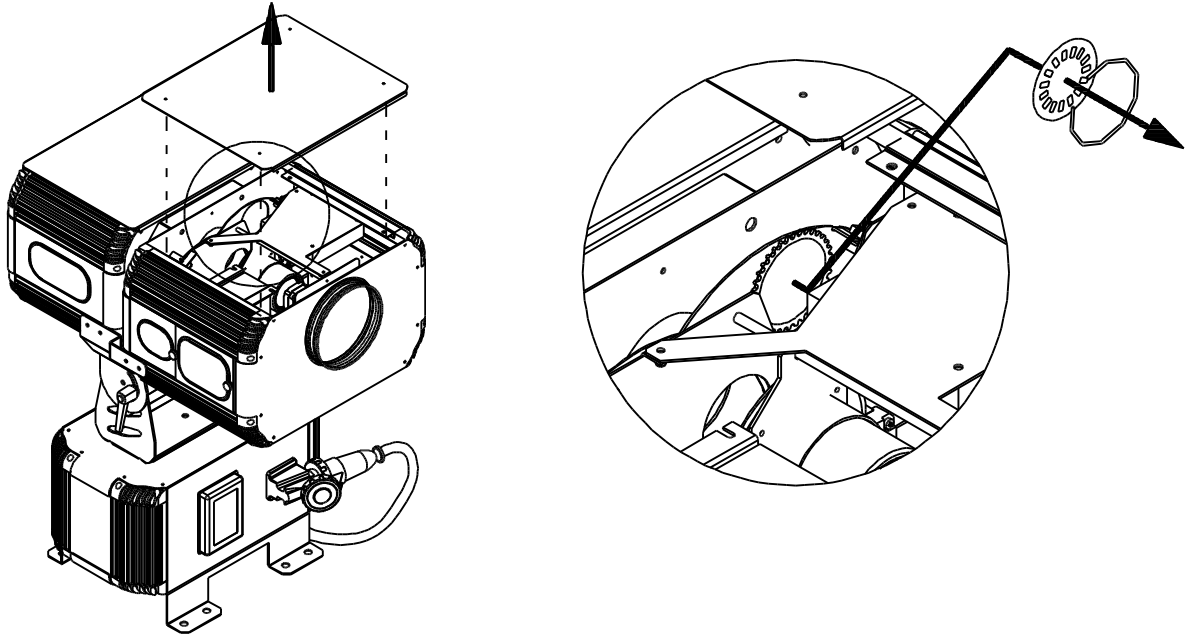
1. Press <TRIGGER>.
2. Settle a value (0 for maximum speed, 255 for minimum speed).
3. Press <MEMO>.

To return to microphone operation, redo the first procedure writing 00 as MASTER value.

## 18 – CHANGING THE GOBOS

The gobos in the Night Colour Pan Auto are easily changeable. The Night Colour Pan takes Standard M size gobos which are available from all good gobo suppliers (M Size gobos - external  $\varnothing$  66mm image  $\varnothing$  49.5mm). Either metal or glass gobos may be used with a maximum thickness of 2mm. The gobos must be made of a material that will resist very high temperatures (for example glass should be boro-silicate) to enable them to last for a reasonable time.

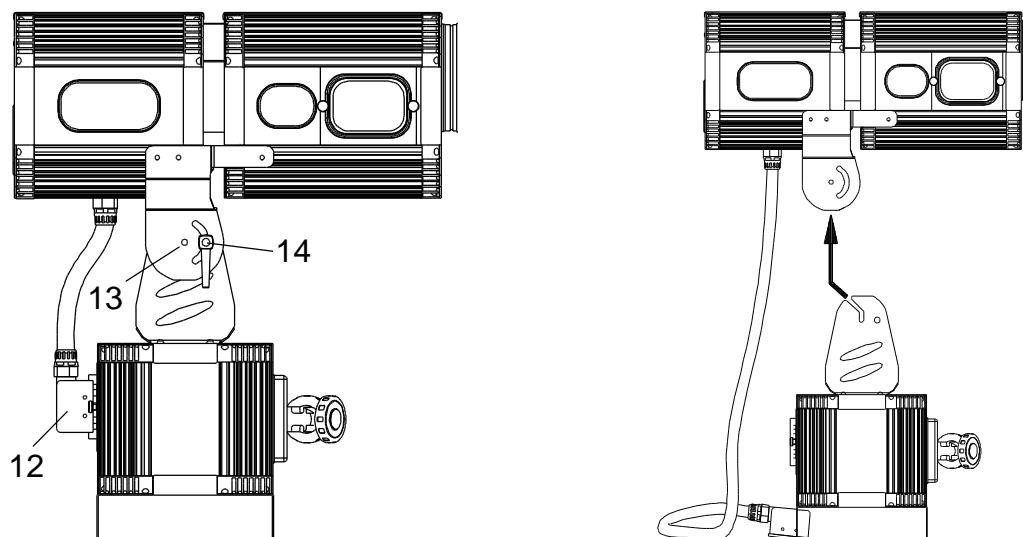
To change the gobos, first make sure the projector is off and that you have allowed sufficient time for it to cool down. Unscrew and lift off the top front cover, carefully remove the hexagonal spring gobo retaining clip, and then the gobo. Insert the new gobo and replace the spring retaining clip making sure it is correctly positioned in the gobo holder, turn the gobo wheel by hand to find and substitute any other gobos, then close carefully the top front cover again.



## 19 – TRANSPORT

If required for transport purposes, the head of the Night Colour Pan Auto may be detached from the Ballast unit. Undo the 2 screws (13), release the plug (12) and undo completely the tilt adjustment knobs (14). Lift the projector head upwards to detach.

**Attention:** Always ensure the projector is disconnected from the mains power before attempting this operation.

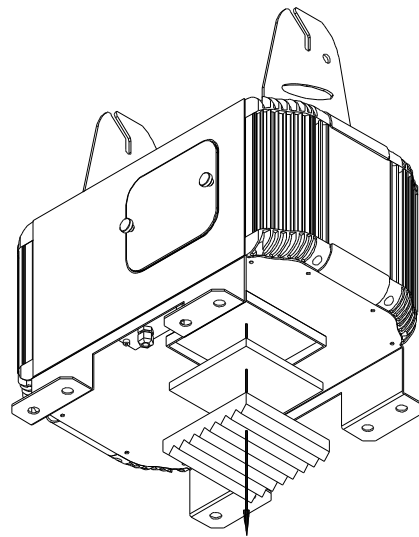
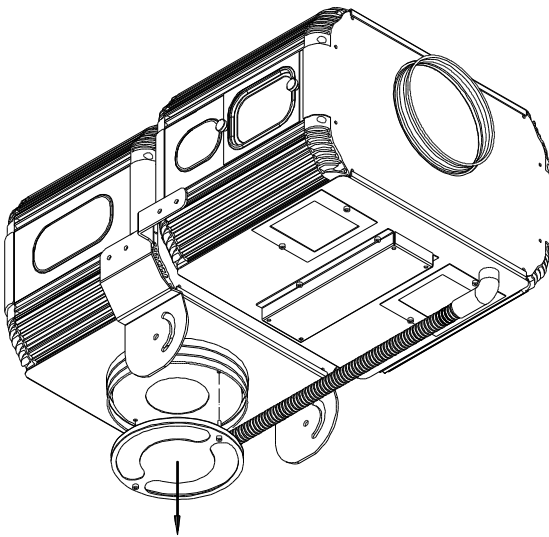


## 20 – MAINTENANCE

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.  
 The Night Colour Pan Auto also has a thermal protection device that will switch off the projector in case of overheating, should this 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.

## 21 – 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 fans under the projector head and under the base of the power supply unit both have removable covers to facilitate easy cleaning. These should be removed from the unit for cleaning and then carefully re-attached. The lens and dichroic filters should also be regularly cleaned to maintain an optimum light output. In exterior locations the front lens should be checked and, if necessary, cleaned every week as rainwater can carry many impurities that can obscure the lens and block light output.



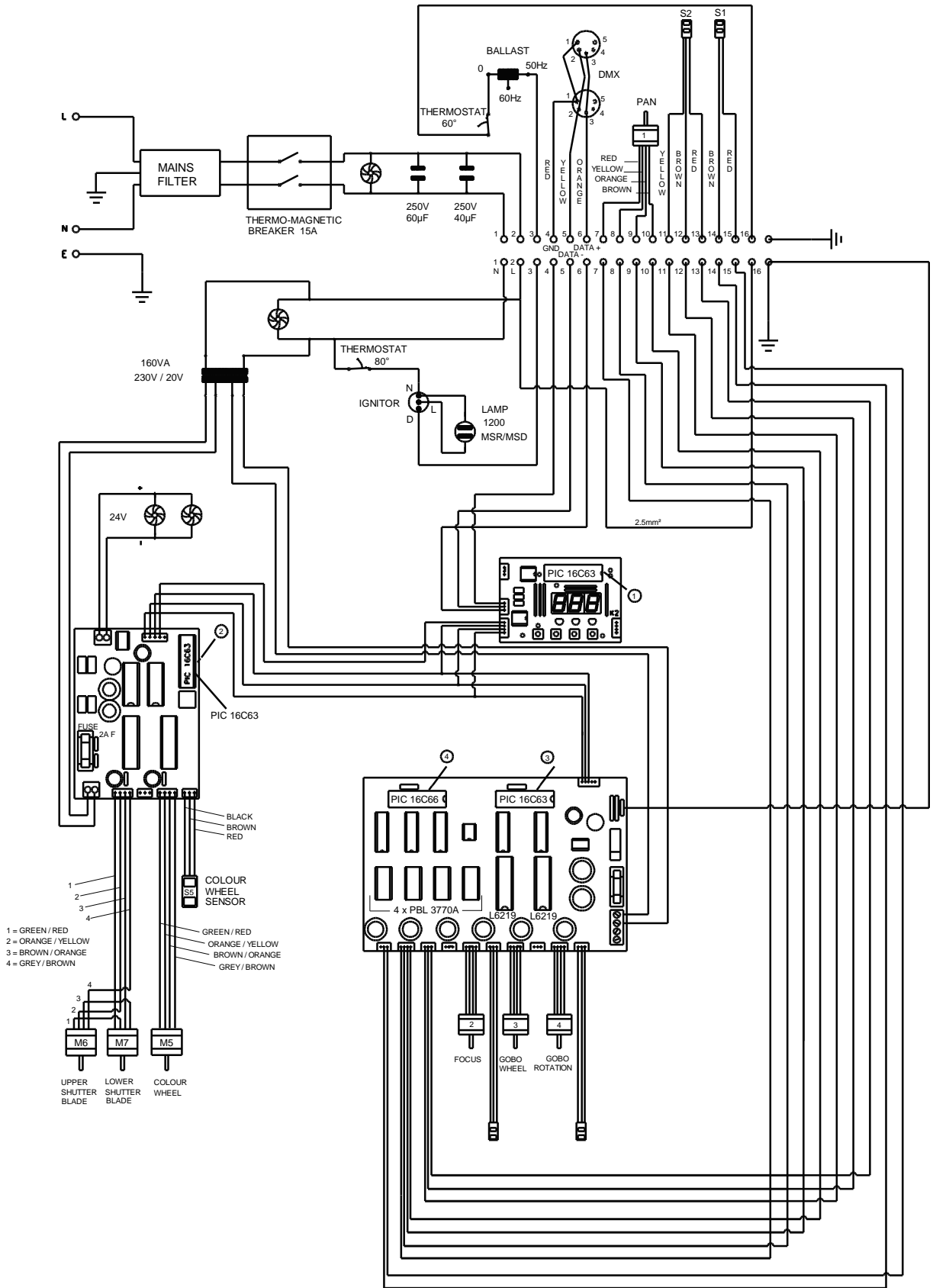
## 22 – TROUBLESHOOTING

PROBLEM	POSSIBLE SOLUTION
The lamp comes on but the projector does not respond to the controller	Check the digital start address (section 09) and check the wiring of the control cable (section 08).
The projector only functions intermittently	Check the fan is working and not dirty.
The projected image appears to have a halo	Check the lamp is installed correctly (sections 03 and 05).
The beam appears dim	The lamp may be at the end of its life and should be replaced. Check the optics are clean.
In Master and Slave mode the projectors are not synchronised.	Check the DMX cables (all slaves should be showing a green status LED). Check that no more than one projector is set as Master.
In Master and Slave mode the projectors set to the same program make different colours.	Check that options 1 and 2 are not activated.
Gobo projection is out of focus	Check the zoom adjustment.

Any other maintenance should only be performed by a qualified person.



23 – ELECTRICAL DIAGRAM



**24 – TECHNICAL DATA**

<b>POWER SUPPLY:</b>	230V 50Hz or 60 Hz (240V 50Hz).
<b>POWER CONSUMPTION:</b>	1900VA at 230V.
<b>LAMP:</b>	1200 MSR or HSR socket G 22 (lumen output 110.000 lm). Colour temperature 5600 K. Life 800 hours (manufacturers rating). 1200 MSD HSD socket G 22 (lumen output 92.000 lm). Colour temperature 6000 K. Life 2000 hours (manufacturers rating).
<b>OPTICS:</b>	High efficiency optical system. Cold light reflector.
<b>COLOURS:</b>	7 dichroic filters with chromatic yield + white.
<b>ROTATING GOBOS:</b>	4 indexable interchangeable rotating gobos + clear. M Size gobos outer $\varnothing$ 66mm image 49.5mm.
<b>ZOOM AND FOCUS:</b>	Manually adjustable zoom from 20° to 31°. DMX controlled focus.
<b>SHUTTER, DIMMER:</b>	Linear dimming shutter. Strobe effect with strobe speed from 1 to 4 flashes per second.
<b>MOTORS:</b>	7 microstepping stepper motors controlled by internal microprocessor.
<b>PAN:</b>	Pan movement through 340° with auto-correction encoder.
<b>CONTROL:</b>	Standard DMX 512. Automatic: internal pre-programmed Master / Slave sequences. Autobox for customisation of automatic programs.
<b>COOLING:</b>	Forced cooling via low noise axial fans.
<b>HOUSING:</b>	In extruded aluminium and galvanised steel. Epoxy paint finish. Easy access for lamp change and to main components. Protection IP 44 - Ambient temperature 25° C.
<b>DIMENSIONS:</b>	450mm Wide x 630mm Long x 730mm High including bracket and base.
<b>WEIGHT:</b>	Projector Head 34kg. Base 26kg.
<b>REFERENCE NORM:</b>	CE.

