coemar nat
pc 2500 HTI

serial number _____

date of purchase _____

retailer _____

address _____

suburb _____

capital city _____

state _____

tel./fax/ _____

Please note in the space provided above the relative service information of the model and the retailer from whom you purchased your **coemar nat pc 2500 HTI***: This information will assist us in providing spare parts, repairs or in answering any technical enquiries with the utmost speed and accuracy.*

WARNING*: the security of the fixture is granted only if these instructions are strictly followed; therefore it is absolutely necessary to keep this manual.*

Index

Congratulations on having purchased a new **coemar** product; you have assured yourself of a fixture of the highest quality, both in the components used and in the technology. We renew our request to you to complete the service information on the preceding page, to expedite any request for information, or for service (in case of problems encountered either during, or subsequent to, installation). This information will assist in prompt and accurate advice from your authorised **coemar** service centre.

1. Technical characteristics

coemar nat pc 2500 HTI is a lighting fixture suitable for use in television studios, concerts, theatres, and discos. Its principal characteristics are:

projector body
- body in cast and extruded aluminium with parts in sheet steel
- colour black and grey, with scratch-resistant epoxy powder paint
- aluminium yoke, adjustable to +/- 45° on the axis of the projector, and repositionable longitudinally
- removable door located on top for full internal inspection and lamp replacement
- focus and zoom lenses mounted on bearing guides
- operates in any position
- high-efficiency forced ventilation
- separate ballast housing
- weight: 31 Kg (**coemar nat pc 2500 HTI 0/28/45**)
  41,5 Kg (**coemar nat pc 2500 HTI 0/14/28**)
  ballast weight: 30,5 Kg
- G 22s lampholder
- IP20 protection rating

optics
- spherical high-reflectivity quartz aluminium reflector
- condensor optics with parabolic and planoconvex acromatically treated lenses
- high definition motorised zoom optics allowing the beam angle to be varied between 14° and 28° (**coemar nat pc 2500 HTI 0/14/28**) and between 28° and 45° (**coemar nat pc 2500 HTI 0/28/45**)
- working distance: 4~32 mt

frost
- proportionally insertable frost filter with flash frost effect

iris
- slick motorised iris diaphragm with in-built variable speed pulse facility

dimmer
- totally smooth inbuilt mechanical dimmer for complete intensity control from 0 to 100% with no optical degradation

colore
- limitless colour mixing via full cyan, magenta, and yellow dichroic filters

focus
- remote motorised focusing

electronic devices
- indicator for DMX signal reception and data characteristics
- two cannon 3 and 5 pin male and female sockets for control via standard DMX 512
- digital addressing via dip-switches
- self- test incorporated
- all motorised movements using high precision stepper motors
- lamp on/off selectable via DMX signal or can be disabled
- internal resetting
- microprocessor control of all functions
- 9 channels for complete control of all functions
- automatic reset via optical sensors with electronic digital alignment

2. Packaging

Following the instructions contained in this manual will ensure the maximum efficiency of this product for years to come.

Open the packing and ensure that no part of the equipment has suffered damage in transit. In the case of damage to the equipment, contact the carrier immediately by telephone or fax, following this with formal notification in writing.

packing list

Ensure that the packaging contains the correct model ordered with all associated accessories.

1 **coemar nat pc 2500 HTI**
1 **coemar nat pc 2500 HTI** ballast (packaged separately).

3. Lamp: Installation and replacement

coemar nat pc 2500 HTI utilises an Osram HTI 2500w/SE lamp with a G 22. lamp base

This lamp is available through your authorised **coemar** sales agent:

coemar cod.	105246/1
power	2500 w
luminous flux	240.000 lm
colour temperature	6000° K
base	G 22
approximate lamp life	600 hours

Attention
Disconnect mains prior to opening inspection lid

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The fixtures internal temperature can reach 150° C after 5 minutes, with a maximum peak of 350° C; ensure that the bulb is cold before attempting removal. The fixture should be allowed to stand and cool for 10 minutes prior to the removal of the inspection lid.

HTI lamps are part of the mercury vapour family of discharge lamps and must be handled with great care. The lamp operates at high pressure, and the slight risk of explosion of the lamp exists if operated over its recommended life of 600 hours.
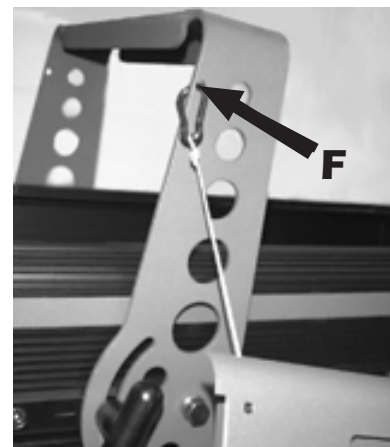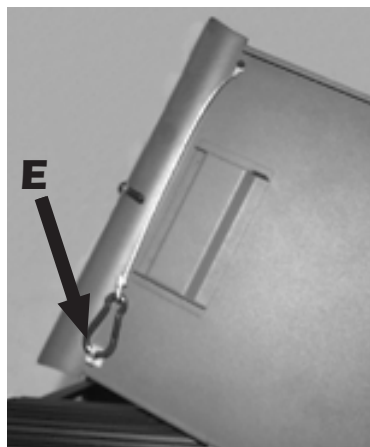
We recommend, therefore, that the lamp be replaced within the manufacturer's specified lamp life.
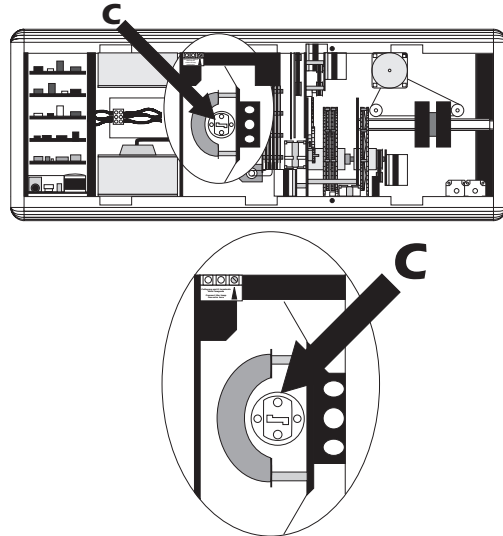
lamp installation

1) Loosen completely the screw (A) at the rear of the unit using a screwdriver.
2) Slide back the inspection lid (B) and remove it from its guides
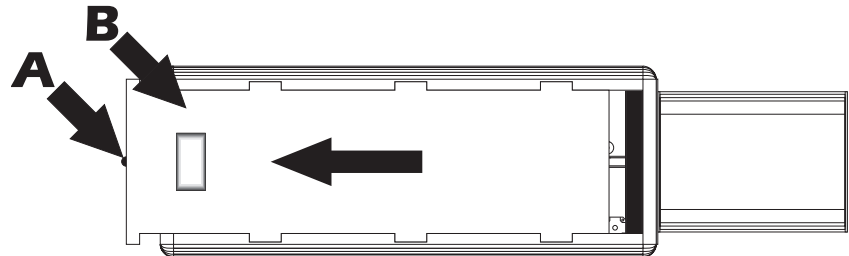
3) Locate the safety clip (**E**) and attach the lid to any suitable structure, for example the yoke of the projector (**F**).

4) Locate the G 22 lampholder (**C**).

5 The G 22 lampholder is symmetrical; the lamp is quartz glass and must be hand-led with care; follow the instructions included in the lamp's packaging. Do not touch the glass directly, use the tissue provided in the box.
Insert the lamp into the lampholder (C). If you encounter difficulty during this operation, DO NO USE UNDUE FORCE. Re-read the instructions and repeat the procedure.
Press the base of the lamp down into the lampbase. If this procedure is not followed correctly, the beam spread may not be uniform.
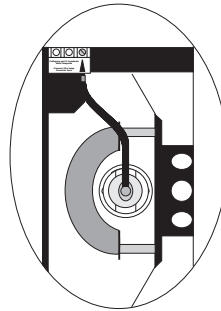
6) Locate the wire terminal on the lamp thread (**D**) as indicated in the diagram, ensuring that the nut is firmly secured to avoid it loosening during operation.
7) Replace the inspection lid (B) into its guides sliding it firmly forwards to ensure it is correctly seated.
Replace and tighten the screws (A).
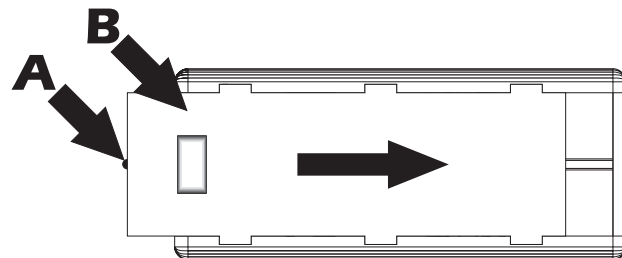
4. Voltage and frequency selection

The projector may operate at voltages including, 208, 230 or 240 v.
coemar factory presets are 230v at 50 Hz (unless otherwise specified).
The voltage and frequency selections are noted on the external sticker of the ballast.and the fixture.

factory set at:
☐ 100V ☒ 230V ☒ 50Hz
☐ 115V ☐ 240V ☐ 60Hz
☐ 208V
serial number
date
inspected by

| factory set at:	
☐ 115V	☒ 230V
☐ 208V	☐ 240V
serial number	
date	
inspected by	

If the voltage and frequency are not suited to your country of operation, read and follow the instructions set down in sections 4.1 and 4.2.
An incorrect selection of either the operating voltage or the frequency will seriously compromise the correct operation of the unit.

4.1 Selecting the operating voltage of the coemar nat pc 2500 HTI
If the voltage preset by **coemar** is unsuitable to your needs, you may alter the voltage setting for the unit to either 208, 230 or 240 V.
1) Remove the screw (**A**) at the rear of the unit and remove the inspection lid (**B**).
2) Locate the terminal strip (**C**).
3) The cable marked 16 determines the operating voltage; it may be connected to the blue cable for 240 v, black for 230 v, yellow for 208 v or red for 115 v; do not move the cable marked 15 which is connected to the white cable from the transformer.
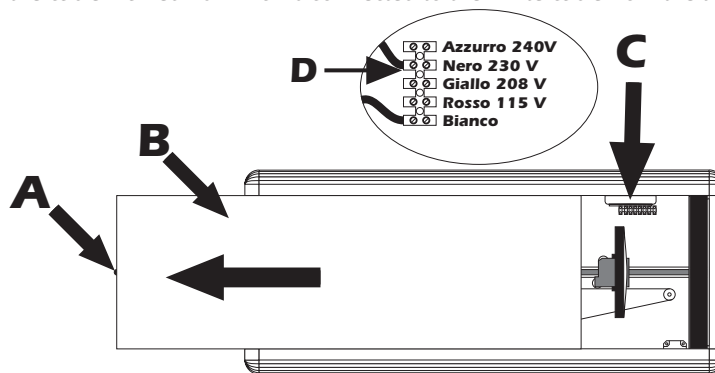
4) After having selected the correct operating voltage, replace the inspection lid (**B**) into its guides and replace and tighten the screw (**A**).
It is not necessary to select the operating frequency for the projector, it can operated at either 50 or 60 Hz.
N.B. If you are operating at 115 V, please ensure that this is noted at time of order.

4.2 Selecting the operating frequency on the ballast
coemar nat pc 2500 HMI can operate at either 50 or 60 Hz which must be correctly selected on the ballast.
1) Locate the frequency selector cover plate on the ballast (A)..
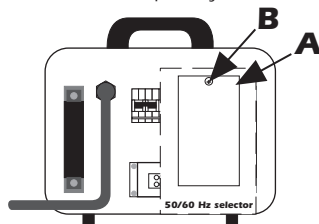
2) Remove the screws which fix the plate (B). and locate the 50/60 Hz frequency selector (C).
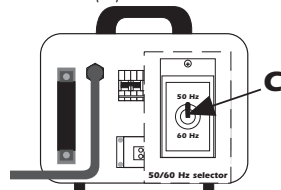
3) Remove the screws which fix the plate (B). and locate the 50/60 Hz frequency selector (C).

4.3 Selecting the operating voltage and frequency on the ballast to other than that specified when ordering

If the factory preset voltage set by **coemar** is other than that requied, you may alter the setting to between 208 and 240 V.

1)Remove the 4 screws (A) located at the rear right of the ballast (those closest to the frequency selector).
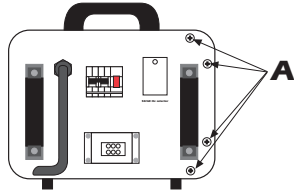
2) Remove the 4 corresponding screws (B) at the opposite end of the ballast
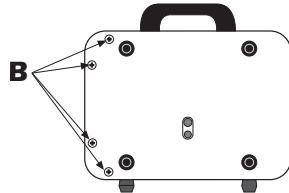
3) Remove the extruded housing (C).
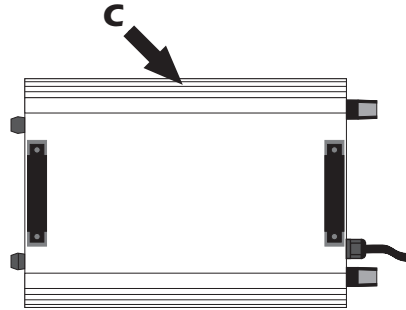
4) Locate the multipole terminal block for the two ballasts, moving the cables numbered **16** on the first ballast and **18** on the second ballast, allows you to select between **208V-230V-240V** at a frequency of 60Hz. Note that the voltage selected must be the same for both ballasts
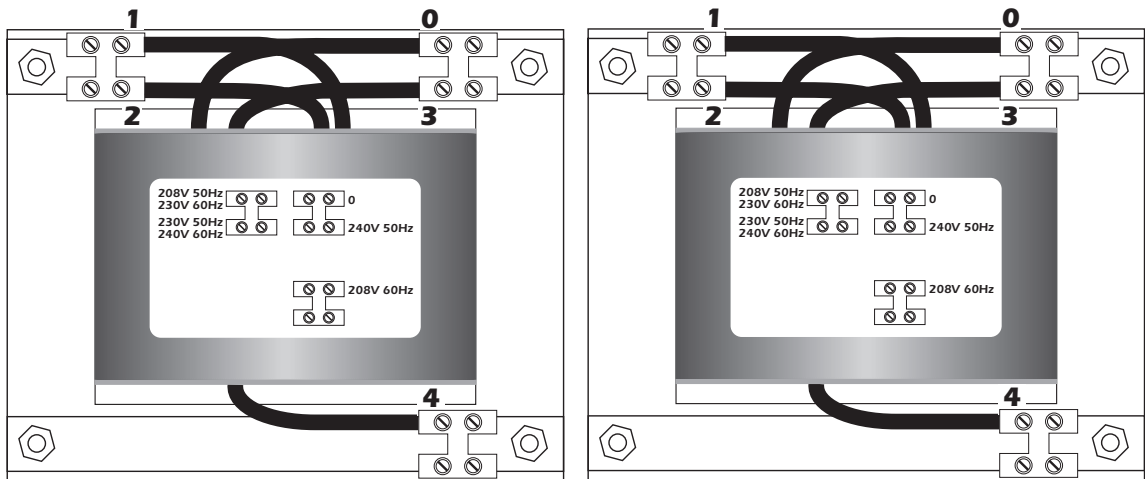
5) Moving the cables numbered **17** on the first ballast and **19** on the second balla-st, allows you to select between **208V-230V-240V** at a frequency of **50Hz**. Again note that the voltage selected must be the same for both ballasts

N.B. During this procedure, under no circumstances should you move the cable marked **1**.

6) After having selected the required operating voltage and frequency, replace the extrusion (C), replacing and tightening the 8 screws (A) and (B).

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note:

The projector and ballast may be constructed to operate at any voltage other than those specified above. Simply specify your requirements upon ordering.
This procedure should only be necessary if your order was placed incorrectly.

5. Mounting the unit

mounting position
coemar nat pc 2500 HTI can operate in any mounting position.

protection against liquids
The projector contains electric and electronic components that must not come into contact with water, oil, or any other liquid.

positioning the lamp
Ensure that the **coemar nat pc 2500 HTI** is always operated with the lampbase at the bottom of the unit. Failure to do so will result in excessive overheating of the lamp and the unit, and can result in a dramatic reduction of lamp life.

vertical movement
The yoke attached to the **coemar nat pc 2500 HTI** is tightened into position via the T-handles provided. To adjust the position of the fixture, loosen the handles slightly and locate the fixture at the required angle. When this is achieved, retighten the handles firmly.
A stop mechanism allows vertical movement in the range of +/- 45°.
coemar nat pc 2500 HTI should always be mounted in the horizontal plane.

adjusting the position of the mounting brackets on the projector body
coemar positions the mounting brackets on the projector to ensure correct balance. For particular applications, it is possible to reposition the mounting bracket laterally along the length of the projector
Loosen the M8 bolts (A) and the M10 screws (B), which fix the mounting plate (C), to the projector body, loosening, if necessary, the four M6 screws (D) which fix the carry handles.
Reposition the mounting plate (E), in the desired position, then replace and tighten the bolts and screws (B) and (A) securely.
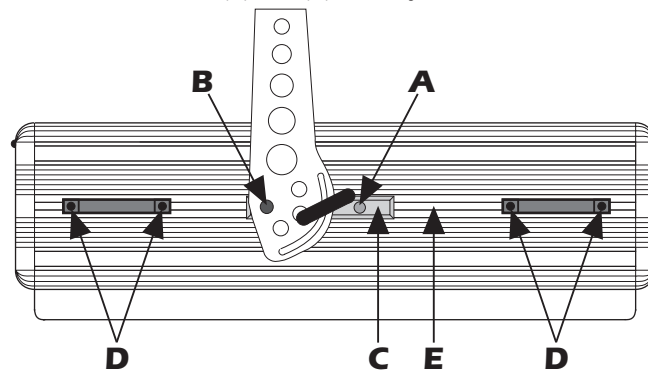
mounting
The yoke is provided with three unthreaded ø 13,5mm holes as the mounting points for hookclamps (cod.071) or suchlike.
Ensure that your hookclamps are sufficiently strong to support the weight of the **coemar nat pc 2500 HTI** .

safety chain
The use of a safety chain (cod. 069) fixed to the **coemar nat pc 2500 HTI** and to the primary suspension point, is highly recommended to protect against accidental failure, however unlikely, of the primary suspension point.
If using an after-market safety chain, not manufactured by **coemar**, ensure that it is of sufficient strength to hold the weight of this fixture.

risk of fire
Each fixture produces heat and must be installed in a well-ventilated position. The minimum recommended distance from flammable material is: 0.5m. Minimum distance from the object being illuminated is: 1m.

mounting the ballast
The ballast is supplied with rubber feet (A) and with two threaded holes of ø10 and ø12 (B) for the fitting of a hookclamp (cod.068) or (cod.071) and suchlike.
Ensure that your hookclamps are sufficiently strong to take the weight of the **ballast**

When hanging the ballast, the use of a safety chain (cod. 069) fixed to the **ballast** and to the primary suspension point is recommended- to protect against the accidental failure (however unlikely) of the primary suspension point.

If using an after-market safety chain, not manufactured by **coemar**, ensure that it is of sufficient strength to hold the weight of this fixture.
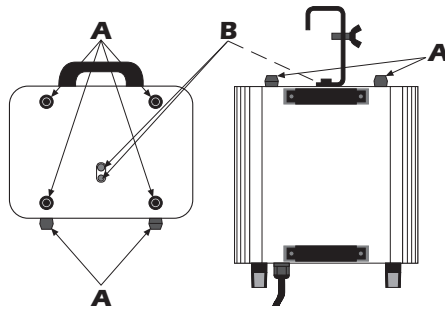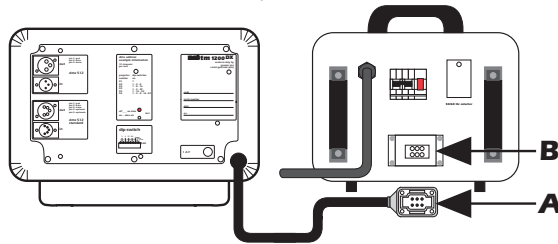
6. Electrical connection

connection between the ballast and the coemar nat pc 2500 HTI

1) Locate the power cable at the rear of the **coemar nat pc 2500 HTI**; this is provided with a 6 pin, 16A plug(A).

2) Insert the plug into the socket (B) located on the ballast, ensuring a secure fit. Close the mechanical stop.

coemar nat pc 2500 HTI is supplied with a 3.5m cable for connection between the projector and the ballast. Extension cables are available to cater for a greater distance between the two, as required.

10m extension cable **coemar** cod. 9204/2
20m extension cable **coemar** cod. 9204/3

cabling

The mains cable provided is thermally resistant, complying to the most recent international standards. It meets or exceeds the VDE and IEC norms, IEC 331, IEC 332 3C, CEI 20 35.

NB: In the case of cable replacement, similar cable, with comparable thermal resistant qualities must be used exclusivelly (cable 3x1,5 ø external 10 mm, rated 300/500V, tested to 2KV, operating temperature -40° +180°, **coemar** cod. CV5309).

mains connection

coemar nat pc 2500 HTI can operate at either 230 V or 115V (the voltage to be specified at the time of ordering; the frequency may be either 50 or 60 Hz (selection as described in section 4).

Prior to mains connection ensure the model in your possesion corresponds to that which your have ordered.

For connection purposes, ensure your plug is of a suitable rating: 9,5 amps for model 230 v. and 18 amps for model 115 V.

Locate the mains cable on the ballast:

marrone - brown

blu - blue

giallo/verde - yellow/green

marrone - brown

blu - blue

giallo/verde - yellow/green

marrone - brown

blu - blue

giallo/verde - yellow/green

ground
massa

neutro
neutral

fase
phase

Alimentazione
main
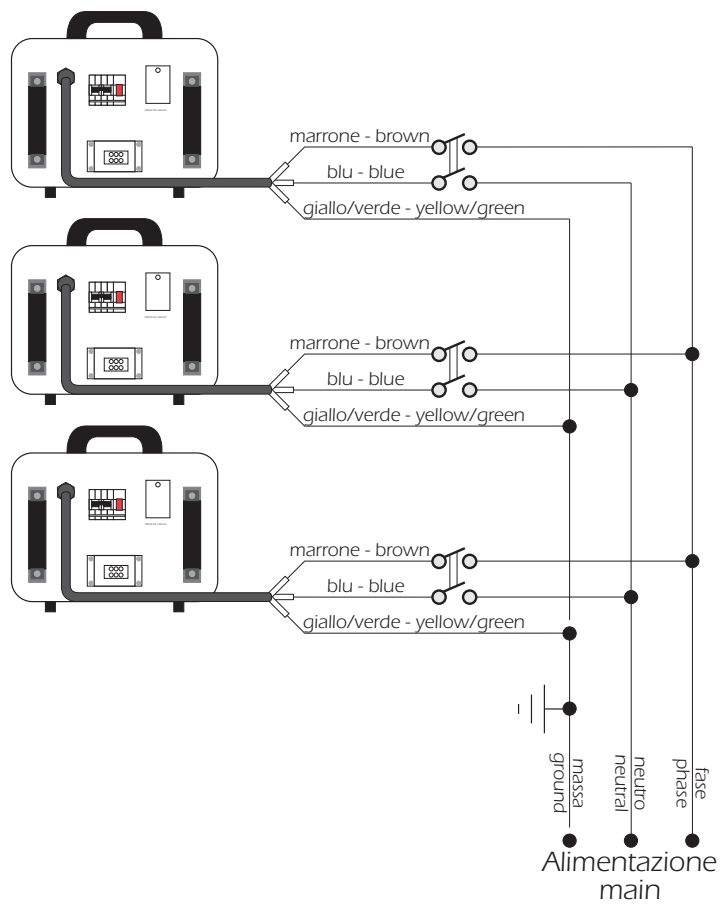
protection

The use of a thermal/magnetic circuit breaker is recommended for each **coemar nat pc 2500 HTI** .

A good earth connection is essential for the correct operation of the fixture. Strict adherance to regulatory norms is strongly recommended.

7. Signal connection

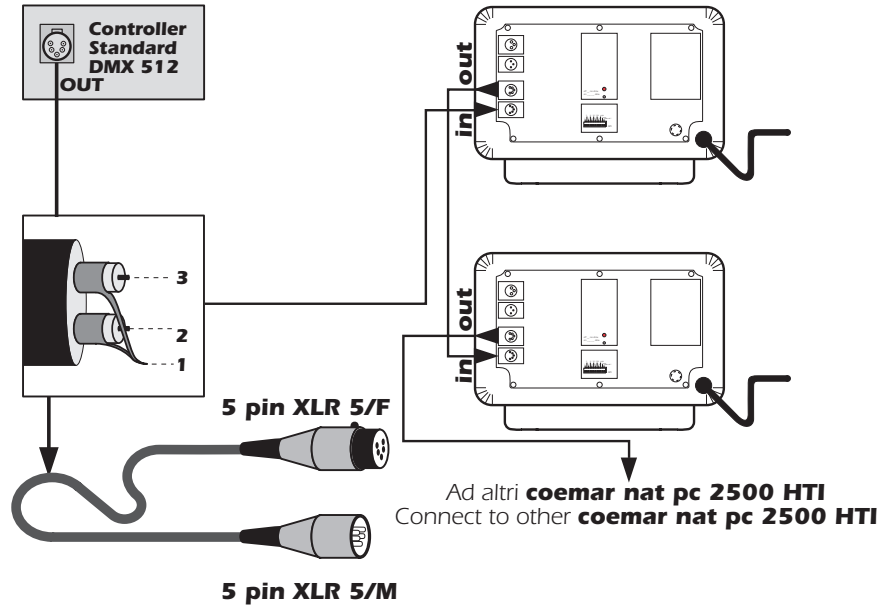Control signal is digital and is transmitted via two pair screened ø 0,5mm cable. Connection is serial, using the XLR 3 or XLR5 male and female sockets set on the rear part of the **coemar nat pc 1200 HMI** labelled **DMX 512** and **DMX 512 standard**. The connections conform to the international standard.

pin 1= screening 0 volt   pin 4= not connected
pin 2= data -   pin 5= not connected
pin 3= data +

connection via 5 Pin XLR 5

Controller
Standard
DMX 512
OUT

3
2
1

5 pin XLR 5/F

5 pin XLR 5/M

Ad altri **coemar nat pc 2500 HTI**
Connect to other **coemar nat pc 2500 HTI**

connection via 3 Pin XLR 3

Controller
Standard
DMX 512
OUT

3
2
1

3 pin XLR 3/F

3 pin XLR 3/M

Ad altri **coemar nat pc 2500 HTI**
Connect to other **coemar nat pc 2500 HTI**
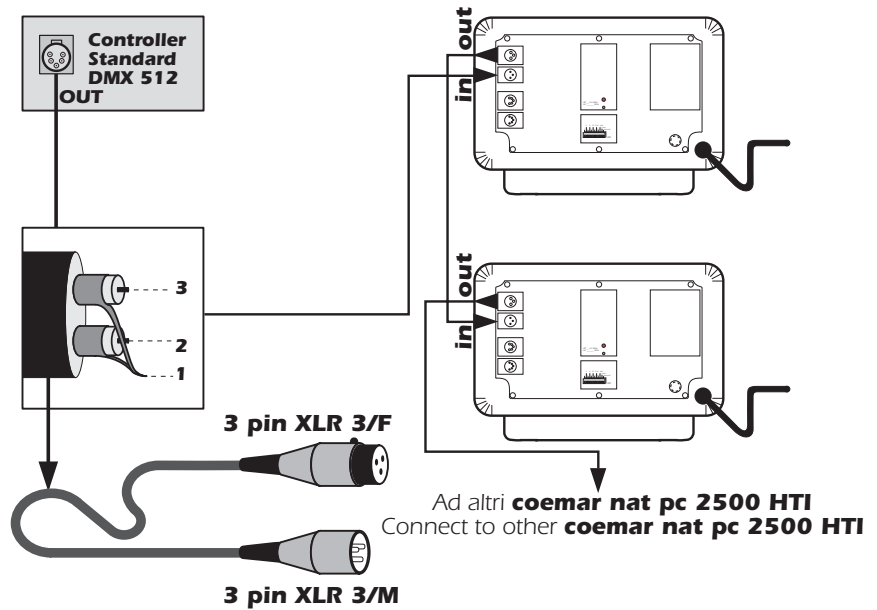
Ensure that all data conductors are isolated from one another and the metal housing of the connector
Make sure that the XLR 3 or 5 pins are isolated form the metal housing of the cannon connector.

8. DMX addressing

Each **coemar nat pc 2500 HTI** utilises **9** channels of **DMX 512** signal for complete control.To ensure that each projector accesses the correct signal, it is necessary to correctly address each fixture. Any number between 1 and 503 can be generated via the dip-switches.
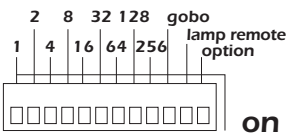This procedure must be repeated on each **coemar nat pc 2500 HTI** positioning the dip-switches as on or off depending on the dmx value required.
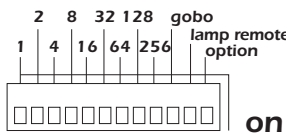The dmx value assigned by the dip switchs is calcualted as the sum of the individual values. For example:

DMX 98 is obtained by switching to on the dip-switches **64 + 32 +2**.
DMX 56 is obtained by switching to on the dip-switches **32 + 16 + 8**.

The follwoing table will assist you in determining which dip switches to switch to **on** to address **coemar nat pc 2500 HTI** in multiples of 9 beginning at channel 1. Projectors must be switched off during this procedure for changes to be effected..

| numero DMX	dip-switches **on**	numero DMX	dip-switches **on**
01	1	253	1-4-8-16-32-64-128
10	2-8	262	2-4-256
19	1-2-16	271	1-2-4-8-256
28	4-8-16	280	8-16-256
37	1-4-32	289	1-32-256
46	2-4-8-32	298	2-8-32-256
55	1-2-4-16-32	307	1-2-16-32-256
64	64	316	4-8-16-32-256
73	1-8-64	325	1-4-64-256
82	2-16-64	334	2-4-8-64-256
91	1-2-8-16-64	343	1-2-4-16-64-256
100	4-32-64	352	32-64-256
109	1-4-8-32-64	361	1-8-32-64-256
118	2-4-16-32-64	370	2-16-32-64-256
127	1-2-4-8-16-32-64	379	1-2-8-16-32-64-256
136	8-128	388	4-128-256
145	1-16-128	397	1-4-8-128-256
154	2-8-16-128	406	2-4-16-128-256
163	1-2-32-128	415	1-2-8-16-128-256
172	4-8-32-128	424	8-32-128-256
181	1-4-16-32-128	433	1-16-32-128-256
190	2-4-8-32-128	442	2-8-16-32-128-256
199	1-2-4-64-128	451	1-2-64-128-256
208	16-64-128	460	4-8-64-128-256
217	1-8-16-64-128	469	1-4-16-64-128-256
226	2-32-64-128	478	2-4-8-16-64-128-256
235	1-2-8-32-64-128	487	1-2-4-32-64-128-256
244	4-16-32-64-128	496	16-32-64-128-256

9. Inserting a gobo

coemar nat pc 1200 HMI allows for the insertion of a single, interchangeable gobo. The installation procedure is as follows:

1) Remove the locking screw at the rear of the unit and slide back the inspection lid.
2) Locate the two vertical gobo-holder slots located between the colour changer and the dimmer.
3) Insert the gobo (**B**) into the gobo holder (**A**) in the slots shown (**C**)
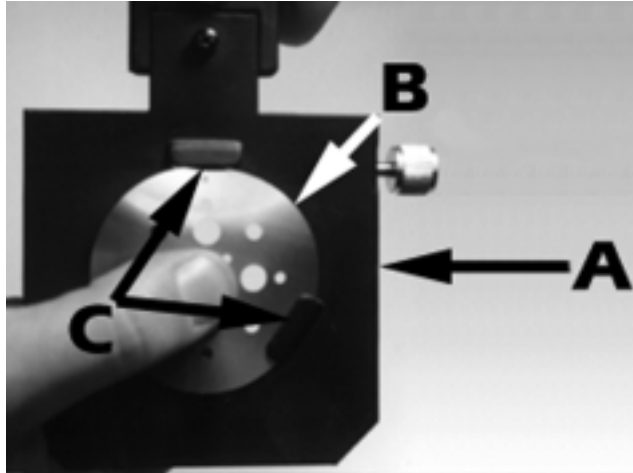
4) Insert the gobo-holder (**B**) into the guides (**A**) securing via the locking knob (**C**).
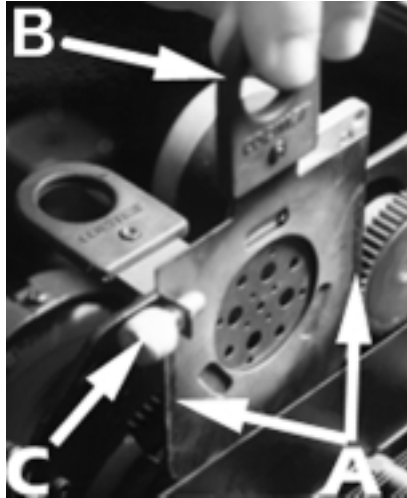
5) Replace the inspection lid and retighten the screw.

6) Prior to powering up the unit, set to **ON** dip-switch n°10 **gobo**. This allows the projector to acknowlege the presence of the gobo by adjusting its focus and zoom positions accordingly. Remember to switch the dip switch to **OFF** after the gobo has been removed.
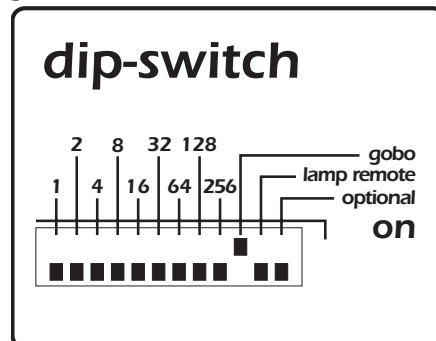
10. Powering up

After having followed the preceding steps, turn on the **DMX 512** controller which will be used to control the **coemar nat pc 2500 HTI** then connect the ballast to its supply. Switch on the power supply and engage the circuit breaker on the **coemar nat pc 2500 HTI ballast** (A)
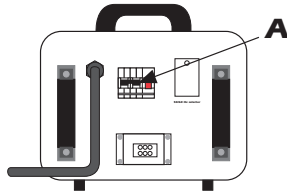
This will, in turn, supply power to the projector which will perform a reset function on all the internal motors. This will last some few seconds, after which it will be subject to the external signal from the controller.

test led

The test led will flash, or remain static on, (depending upon transmission rate) indicating that **DMX 512** signal is connected to the projector.
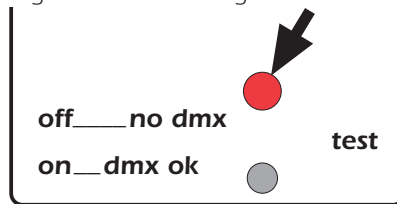
If the test led is off, the projector is not receiving correct signal. Check the connecting cable and the controller's output.

test button

The test button allows the motors of the **coemar nat pc 2500 HTI** to be tested for proper functioning. It also allows the unit to be reset in case any of the motors should lose their point of reference.
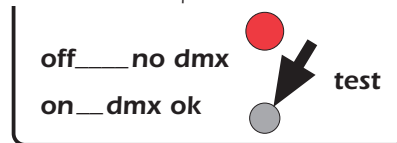
Press the test button for a visual check: all the motors should move to their extreme position, prior to returning to the position as dictated by the controller being used. Note that each time the test button is pressed, the lamp will switch off.

11. Projector functions (dmx channels)

If all procedures to this point have been correctly carried out, the 12 channels of your **DMX 512** controller will have complete control of the **coemar nat pc 2500 HTI** as described in the table below:

channel	function	type of control	effect	percentage	decimal
1	**dimmer**	proportional	from close to open	0/100%	0-255
2	**iris**	step	open	0-14%	0-35
		proportional	from large to small	15-46%	36-115
		step	iris small	47-75%	116-192
		proportional	iris pulse, with increasing pulse speed	76-98%	193-251
		step	iris large	99-100%	252-255
3	**zoom**	proportional	fine zoom control from spot to flood	0/100%	0-255
4	**focus**	proportional	proportional focus control	0/100%	0-255
5	**frost control**	proportional	from no frost to frost	0/50%	0-127
		step	frost	51-75%	128-191
		proportional	frost pulse, with increasing pulse speed	76-98%	192-251
		step	frost	99-100%	252-255
6	**cyan**	proportional	proportional cyan control from white to cyan	0/100%	0-255
7	**magenta**	proportional	proportional magenta control from white to magenta	0/100%	0-255
8	**Yellow**	proportional	proportional yellow control from white to yellow	0/100%	0-255
9	**function**	step	lamp off	0/45%	0-114
			motor reset	46/55%	115-140
			lamp on	56/100%	141-255

N.B. channel 9 has a function delay time of 6 second to prevent accidental activation.

note: dip-switches N° 11 ON will modify channels 9 (inhibit lamp off)

note: dip-switches N° 10 ON will modify zoom and focus for gobo operation

note: shutter blade need iris open for perfect operation

note: gobo holder must be used only with gobo operation

12. Shutter adjustment

The four internal framing shutters of the **coemar nat pc 2500 HTI** allow the beam of light to be shaped or framed either vertically or horizontally, as required. The framing shutters should be adjusted with the lamp on and the iris open fully.; channel number 2 must therefore be set to full on.

The procedure for framing the beam are as follows:

1) Remove the screw at the rear of the projector and slide the inspection lid back to at least the colour changer so as to have access to the framing shutters (**A**).
2) Locate the four handles of the framing shutters.
3) After having adjusted the shutters as required, slide back the inspection lid and replace the rear screw.
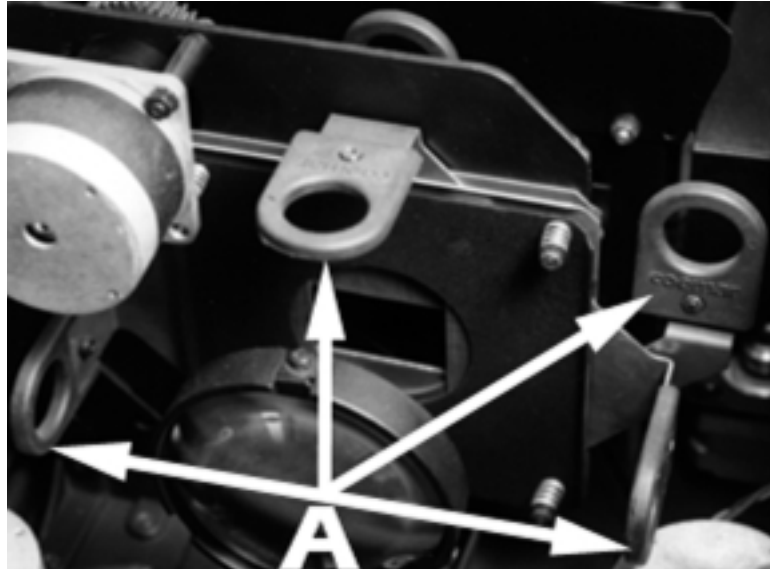
13. "Lamp remote" function

In normal usage, the **coemar nat pc 2500 HTI** allows the lamp to be switched on or off via the DMX signal. If you wish this option to be disenabled, switching the dip switch marked "lamp remote" will cause the lamp to be switched on permanently.

This procedure should be undertaken with the unit unpowered in order to take effect upon the next start up.

1) Leave the "lamp remote" dip switch in the off position if you wish to have lamp control via DMX signal.
2) Move the "lamp remote" dip switch to the on position if you wish to have the lamp switched permanently on.
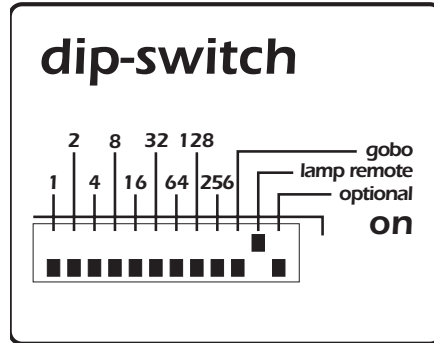
13.1 "optional" dip-switch
This function is not utilised

14. Maintenance

Whilst every possible precaution has been taken to ensure the trouble free operation of your **coemar nat pc 1200 HMI**, the following periodic maintenance is highly recommended. Before attempting any of the following, ensure that the mains supply to the unit is disconnected.

Attention
Remove mains power before opening the inspection lid.

Opening the projector:
Loosen the screws (A), then remove the inspection lid (B) completely.
Upon completion of the following, replace the inspection lid and tighten the screws (A) firmly.

Fuse replacement
Locate the fuse on the circuit board at the rear of the **coemar nat pc 1200 HMI** (see diagramme). Using a multimeter, test the condition of the fuse, replacing it with one of equivalent type if necessary. (T 2A).

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 specialised lens cleaning solution.

Fans and air passages
The fans and air passages must be cleaned approximatley every 6 weeks; the period for this periodic cleaning will depend, of course, upon 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.

Periodic maintenance
Lamp
The lamp should be replaced if there is any observable damage or deformation due to heat. This will avoid the danger of the lamp exploding.

Mechanicals
Periodically check all mechanical devices for wear and tear; gears, guides, belts, etc., replacing them if necessary.
Periodically check the lubrication of all components, particularly the parts subject to high temperatures. If necessary, lubricate with suitable lubricant (**coemar** cod. **MV 6173/1**) as shown in the following figure.

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

15. Spare parts

All the components of the **coemar nat pc 2500 HTI** are available as replacement spares from your authorised **coemar** service centre.
Accurate description of the fixture, model number, and type will assist us in providing for your requirements, in an efficient and effective manner.