Servicing Manual

GB

LIGHT SOURCE LX 2300 (Xenon 300W)

IM 200-300

serving
healthcare
worldwide

WA001_GB 2006-01-11_MI

LIGHT SOURCE LX2300 (Xenon 300W)

Summary

LIGHT SOURCE LX2300 (Xenon 300W)

1. Warnings and precautions

- Only an **authorized staff** can use this kind of equipment, after a training.
- Please read carefully the instructions manual before setting up and using the light source.
- Before plugging the light source into the mains, make sure that the electric features of your wiring are quite the same as those specified on the equipment. The identification label which mention the service voltage, the electric consumption, etc. is on the rear panel of the appliance.
- **Be careful: HIGH VOLTAGE** inside the appliance!
  Don't open the rear panel of the equipment! Maintenance only by the authorized staff!
- Never have your **eyes** neither in the axis of the light output, nor at the light cable output.
- In order to avoid every risk of burn or electrocution, don't expose this equipment to rain or to an excessive moisture.
- If any fluid infiltrate into the appliance, stop it immediately and remove the plug from the mains
- Never let the mains flex fall and never put heavy things on it. If the mains flex is damaged, unplug immediately the light source from the mains. Never start it with a damaged mains flex!
- To remove the mains flex without damaging it, take it by the end. Never pull on the cable itself.
- The mains plug must be near to the light source and easily accessible.
- Check the ventilation to avoid any overheating of the equipment: fasten a minimum space of 15 cm on the left, on the right and backwards.
- **Be careful: Never** use the appliance next to a flammable gas.
- **Never** put the equipment next to a heat source or in a place exposed to vibrations or shocks.
- Don't use abrasive/corrosive products to clean the surface of the light source: use only cleaning products and disinfectants generally used in hospitals. Clean the light source as recommended by the standard cleaning proceedings of your hospital.
- This light source and its accessories require no special treatment at the end of their life.
- **Be careful:** Don't put the end of the light cable directly on the patient nor on every flammable material (paper, gauzes, operative fields...) because it may be very hot: risks of burns.

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2. Technical Features

- Xenon lamp
- Nominal power: 300 W
- Color temperature: 6 200°K
- Usual life of the lamp: 500 hours (for classical utilization cycles: 30 min. ON – 15 min. OFF)
- Compatible light cables: Storz (Wolf and Olympus with other adaptaters)
- Mechanical IRIS
- Adjustment of the light intensity with the push buttons
- Indication of the minimum and maximum light levels
- Litter: L = 300 mm; D = 311 mm; H = 125 mm
- Weight: 5 kg
- Power supply voltage: 115 – 230 V ~ – 50 – 60 Hz
- Electric Consumption: 350 VA
- 2 T4A Fuses
- Working temperature: +10 à + 40°C
- Moisture working: 85%
- Storage temperature: – 20 à + 45°C
- Storage moisture: 85%
- Continuous service
- Unprotected against water falls (IPX0)
- Unadapted to an utilization in the presence of an anaesthetic mixture flammable with air with oxygen or nitrous oxide.

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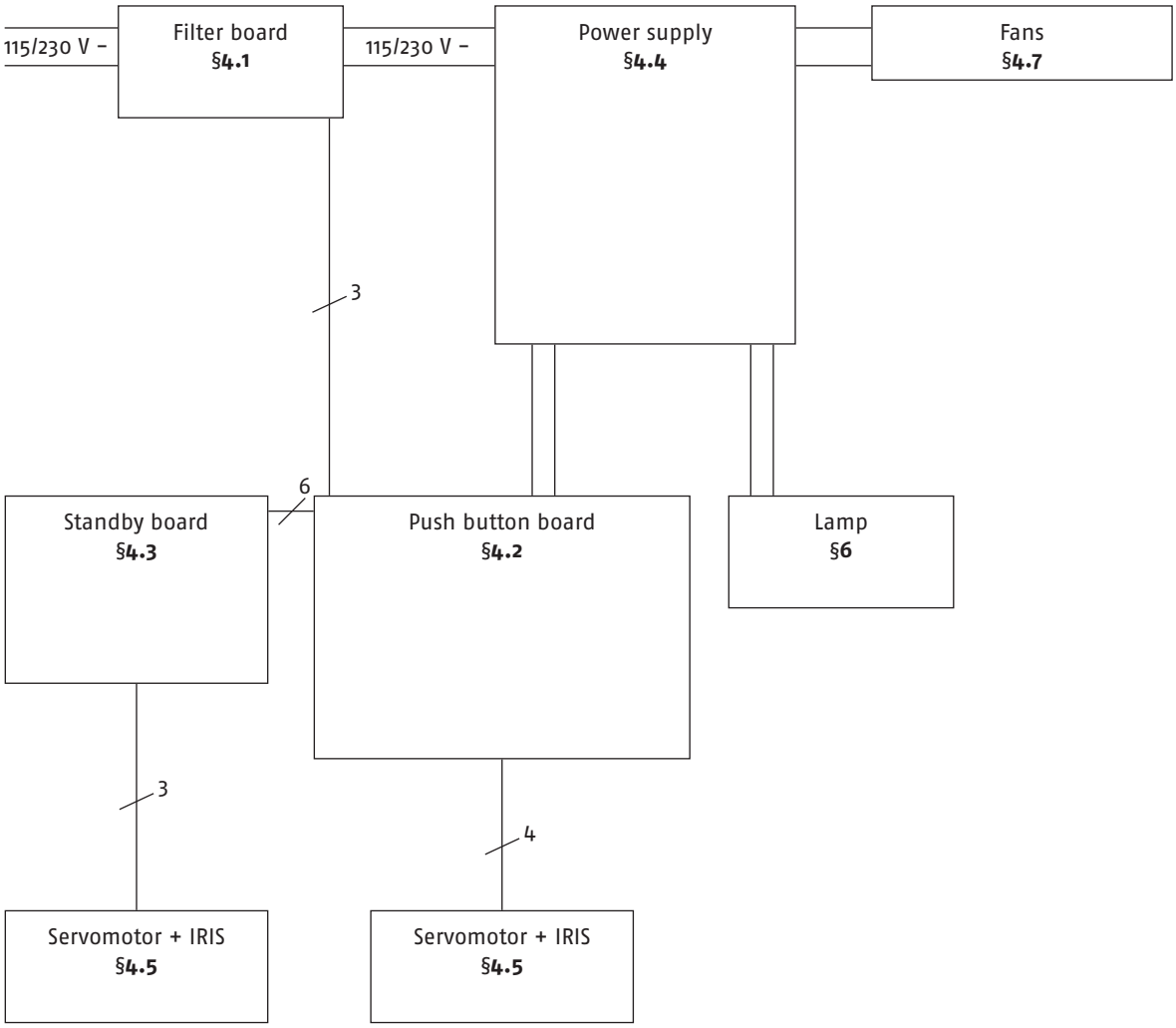
3. Principle Plan



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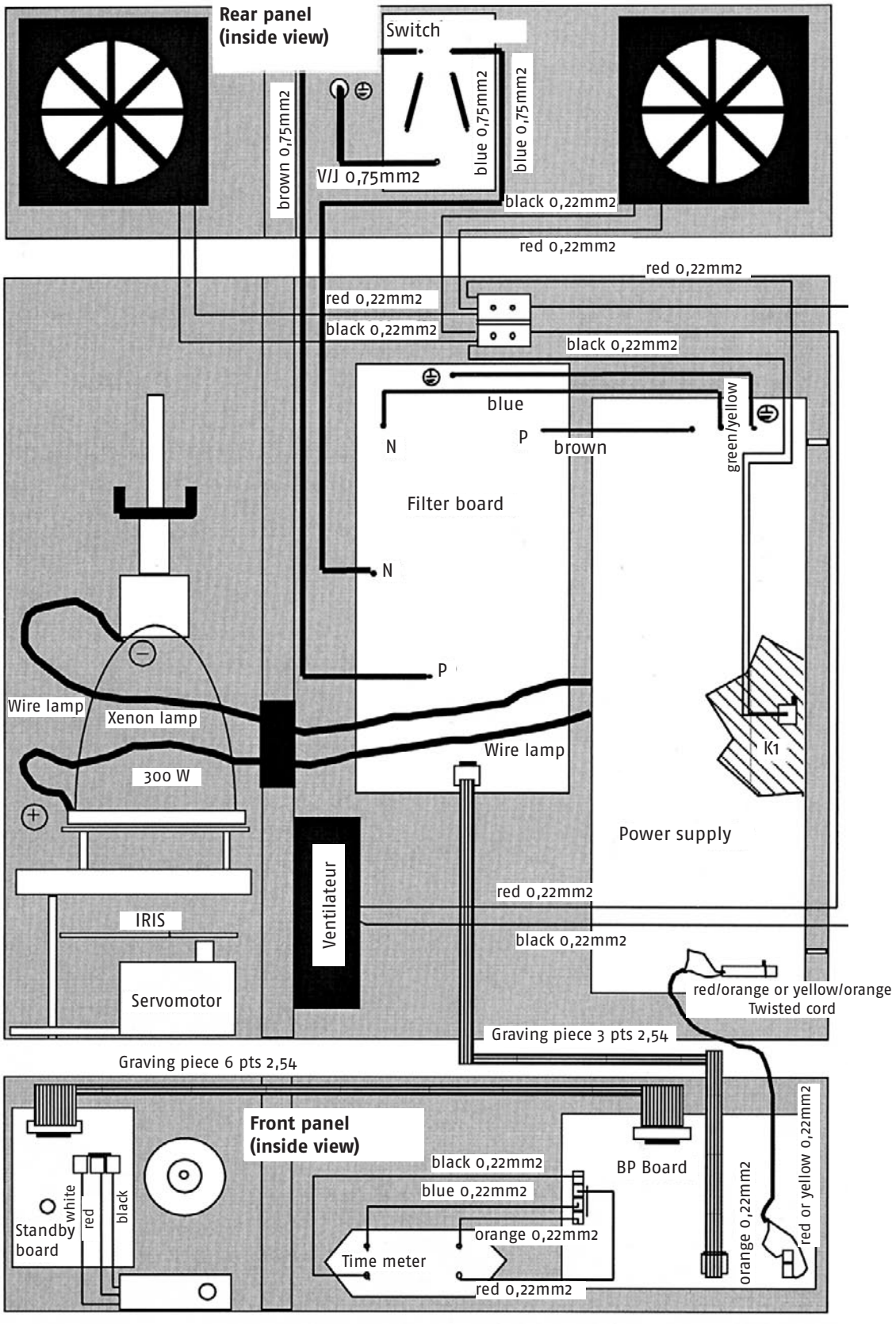
4. Comprehensive view – Setting up Plan



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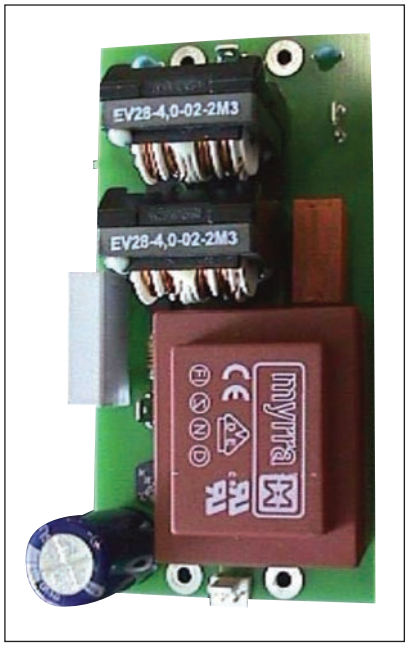
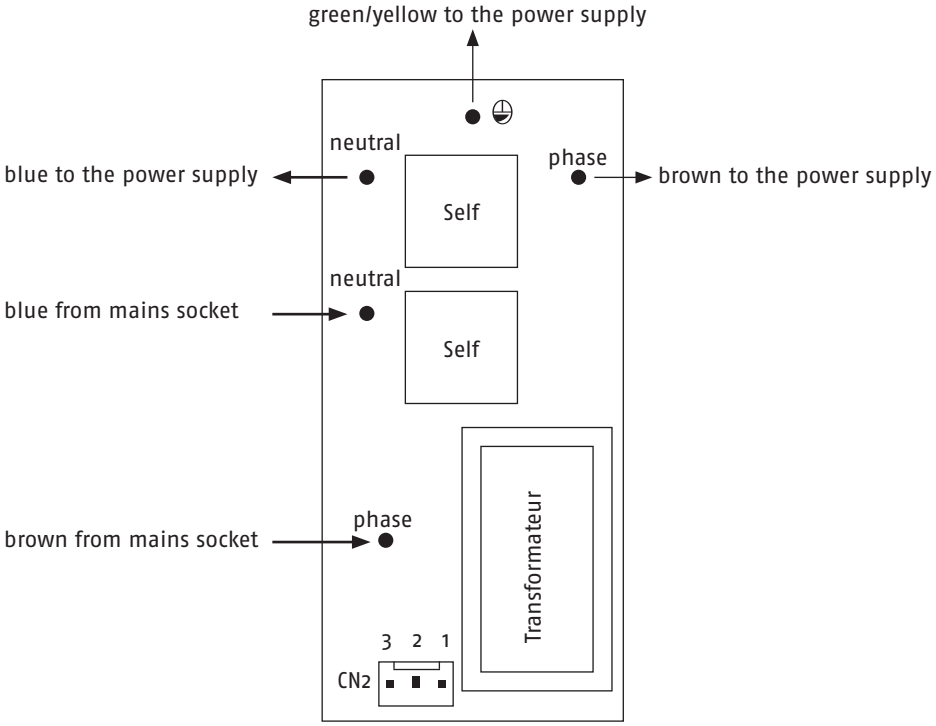
4.1 Filter board





CN2 Autocom bracket 3pts (2,54) to BP board

1 : Unregulated 24V output : 16V to 30V

2 : Ground

3 : Starting control of the main power supply - (with a relay unit) flow from 0 - -> nearly 3V (2,8 to 3,5V) for the starting (setting off of the relay unit on and after 2,5V)

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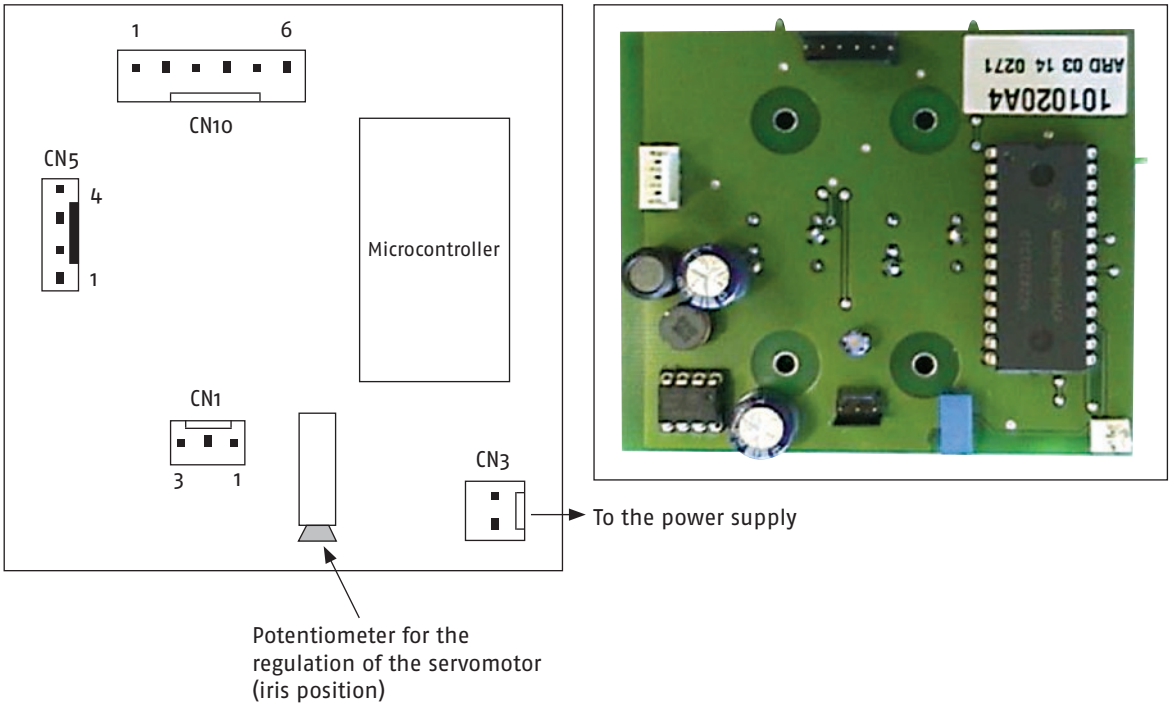
4.2 Push button board



CN3 Molex bracket 2 pts (2,54)
(cf. connectors for 300W power supply)
1 – 2 : Switch on control of the lamp :
continuity between 1 and 2 = switched on lamp
uncontinuity between 1 and 2 = switched off lamp

CN5 Molex bracket 4pts (2,54) to the time meter
1 : orange = reset of the time meter (+5V, during the operation 5ms)
2 : blue = counting (+5V)
3 : red = +5V
4 : black = Ground

CN10 Autocom bracket 6pts (2,54) to the standby board
1 : Ground
2 : Standby button (+5V switched on lamp)
3 : Led of the "Standby" button : (0V switched on lamp/switched off led, 0-5V cyclic connection when winking led)
4 : CTN (voltage which depends on the temperature : switching off voltage of the lamp > = 2V)
5 : +5V
6 : Servomotor control : square cyclic signal 0V/5V, 0V duration which gives the iris position : whatever the condition of the source : switched on or in standby

CN1 Autocom bracket 3pts (2,54) to the filter board
1 : Unregulated 24V input (16V to 30V)
2 : Ground
3 : Starting control of the main power supply – (with a relay unit) : flow from 0 – – > nearly 3V (2,8 to 3,5V) for starting (releasing of the relay from 2,5V)

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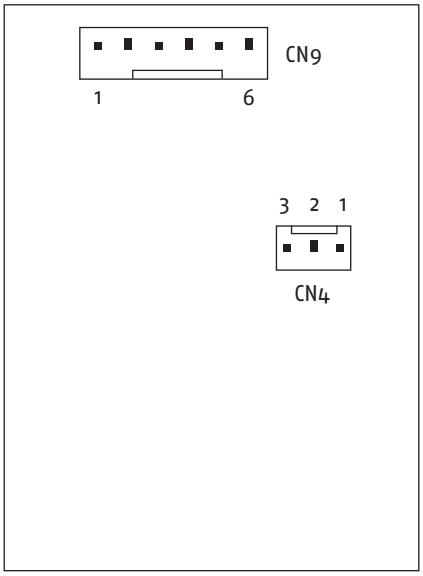
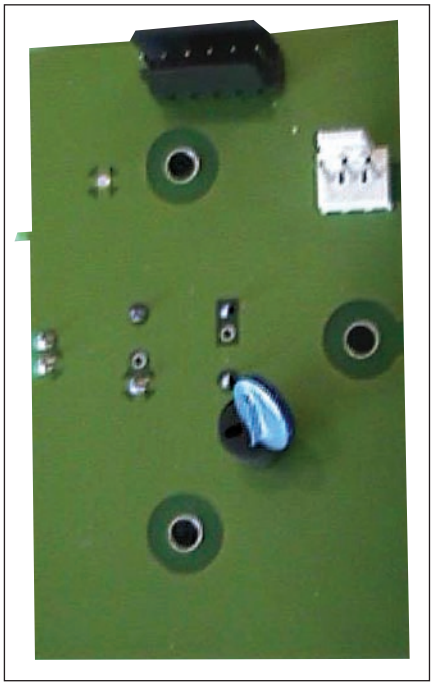
4.3 Standby board





CN4 socket Molex 3pts - 2,54 towards servomotor
1 : black = Ground
2 : red = +5V
3 : white = Servomotor control: cycle square signal 0/5V, time at 0V indicating to the servomoto the IRIS location, regardless of state of the light state (ON or stand by)

CN9 socket Autocom 6pts - 2,54 towards Standby board
1 : Ground
2 : Standby Pushbutton (0/5V)
3 : Led of Standby Pushbutton (0V when light ON/led is OFF, 0-5V cycle when led is flickering)
4 : CTN (voltage depending on temperature: switching off voltage forsecurity: >= 2V)
5 : +5V

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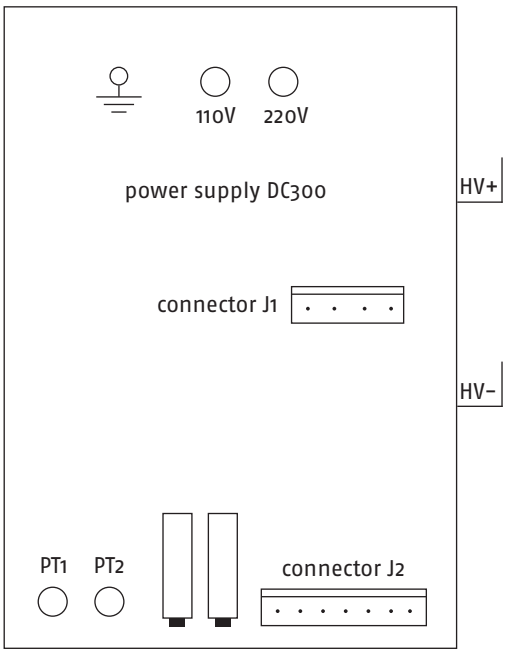
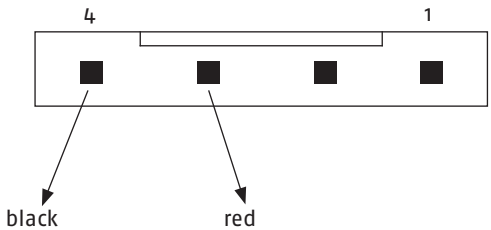
4.4 Power supply



J2 connector : connector for power outline
J1 connector : connector for fan power supply
PT1 : Control voltage (test point)
PT2 : 0 Volt (test point)
HV + / HV – : lamp output

Connector for fans power supply

K1 4pts – 2,54 Molex connector for fans supply



1 : Unused
2 : Unused
3 : 12V DC
4 : 0V

– The "+" wire of the lamp can be identified thanks to a red sheath.

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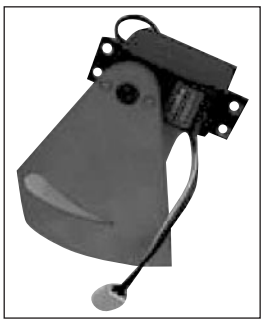
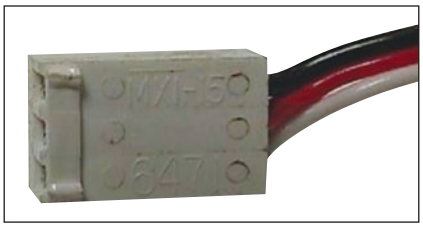
4.5 Servomotor + Iris



- The connector has got three wires and allows to control the servomotor.
- There are the earth (black wire), the +5V (red wire) and the control (white wire).



- Adjustment of the iris : see §5 (**IRIS Regulation**).

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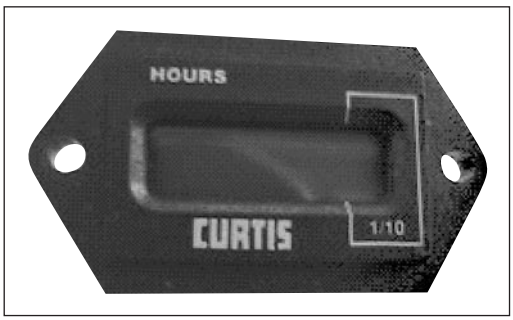
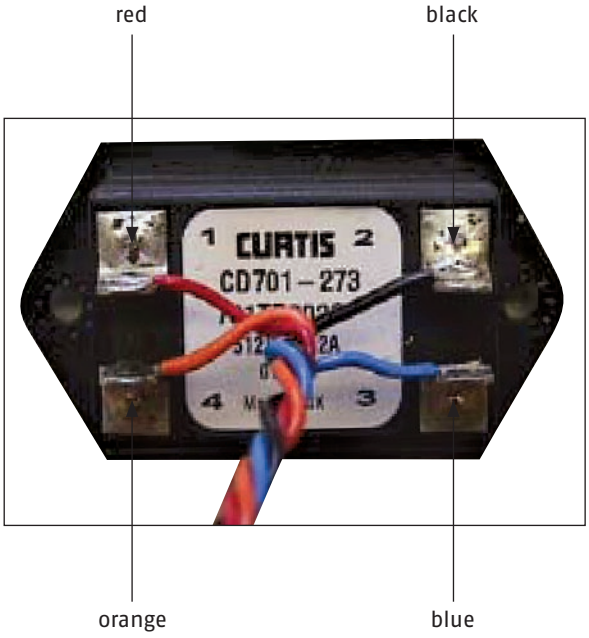
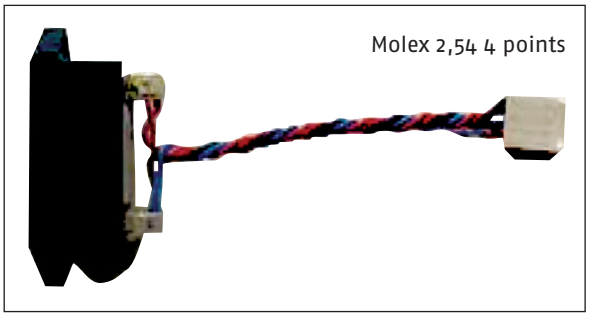
4.6 Time meter



Technical specification:

Recording and display:	99 999.9 hours
Precision:	+/- 0.04%
Consumption:	1 mA max
Utilization temperature:	- 40°C to + 85°C
Moisture:	95% HR (uncondensed) when 38°C
Connection on "faston" type hull:	4.76 mm
Service voltage:	5 to 12 Vcc





black
red
blue
orange

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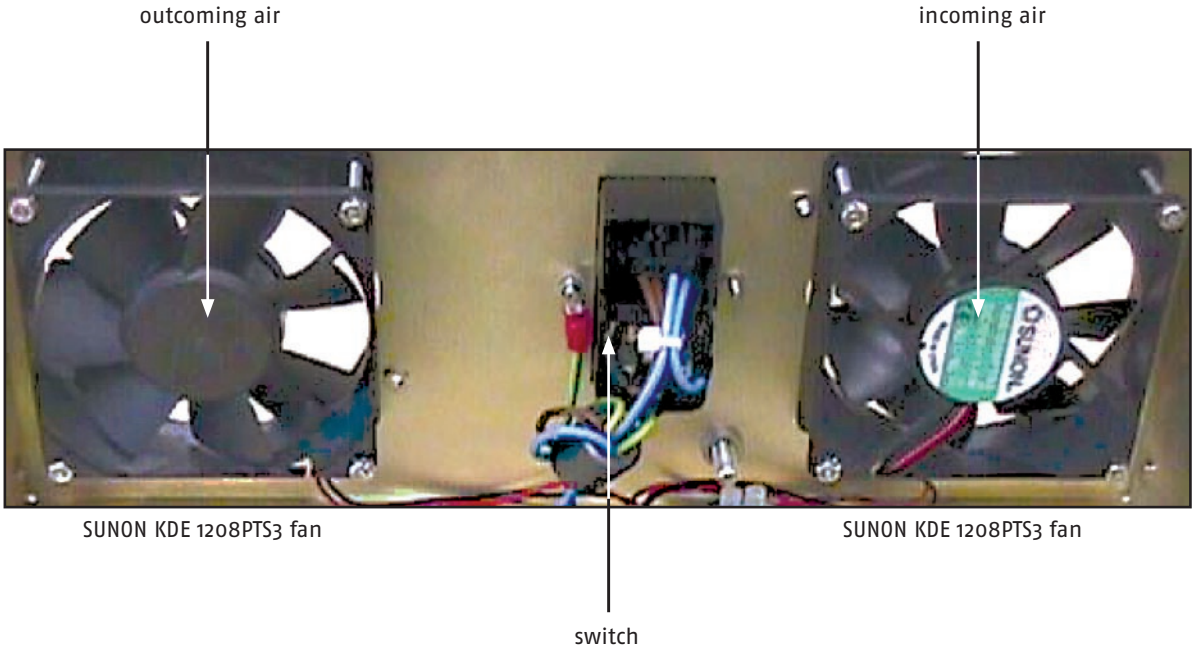
4.7 Rear face



- SUNON fan KDE 1208PTS3 DC 12V 1.4W

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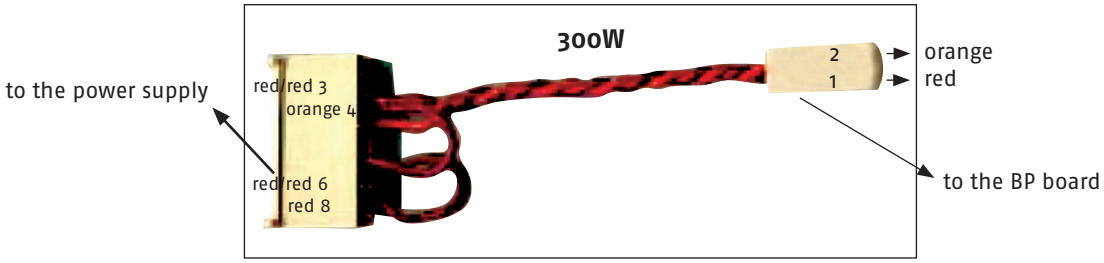
4.8 Connector for power supply outline

Power supply connectors for 300W lamp



Connector 9pts
1 : Unused
2 : Unused
3 : Connected on 6 (12V)
4 : Switch on control of the lamp : return of the signal from the pin 8 (0V switched off lamp or 12V switched on lamp)
5 : Unused
6 : Power circuit/lamp
7 : Unused
8 : Switch on circuit lamp : output signal to optocoupler on BP board continually 12V
9 : Unused

Molexconnector 2pts
Switch on circuit of the lamp
1 : Going signal (from 8 to the power supply) From the optocoupler to the BP board
2 : 12V return signal to switch on the lamp (to 4 of the power supply)

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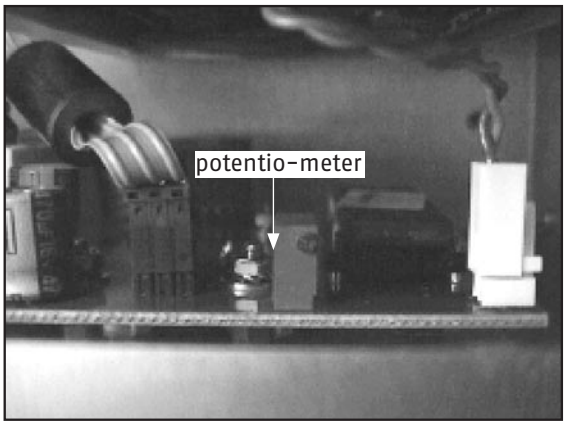
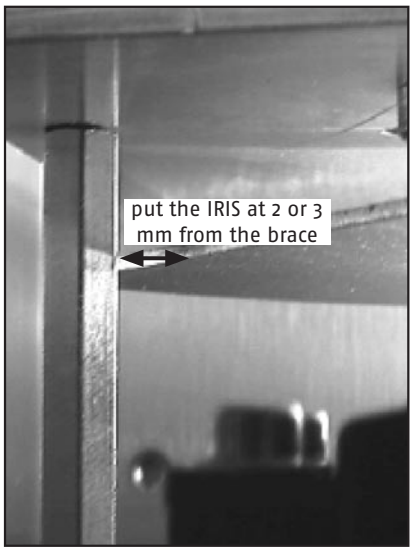
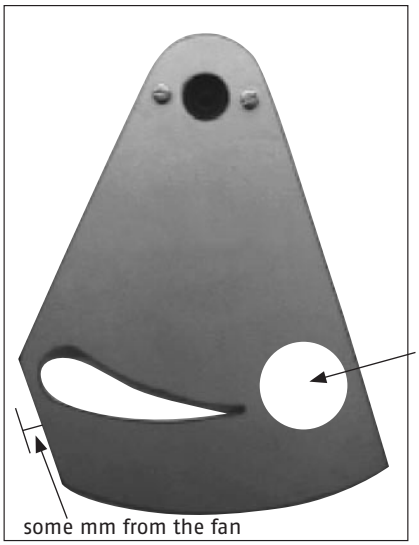
5. IRIS regulation

The iris position can be finely adjusted with the potentio-meter of the BP board.
- Connect the source to the mains
- Rock the switch backwards on "I". The green led on the front panel flashes
- Switch on the source with the Standby button
- Press until it lights up to have the maximum light
- Keep on pressing the button and regulate the potentio-meter to put the IRIS at 2 or 3 mm from the brace





- Lessen the light to the minimum by pressing until it lights up
- Control that the beam of light is directed on the IRIS steel sheet and that the IRIS doesn't touch the fan



- Adjust again from the necessary

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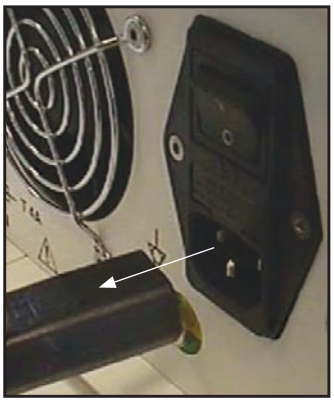
6. Proceedings for the change of the lamp

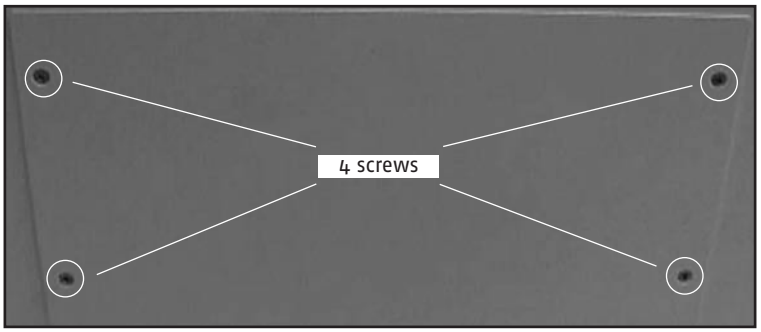
Warnings and precautions

- A change of lamp can be made only by an authorized staff who must take safety rules into consideration.
- Before any handling, wait for the cooling of the lamp!
- The powers and electric currents involved by the power supply of the source require a perfect knowledge of the equipment.
- Send back your source to your supplier who will seize to make a servicing of your equipment.
- If you have to change the lamp whereas the source is still tepid, always use a pair of gloves and protective glasses.
- After removing the lamp, put it in its original packaging.
- Never let it without any protection (gas under high tension).
- Don't bring any pressure nor tension on the lamp.
- Send it back to the supplier in its original packaging.

- Switch off the source and unplug it from the mains.
- Put the source on a large and stable working area.



- With a cruciform screwdriver, unscrew the 4 screws on the left side of the casing of the source to have access to the lamp.



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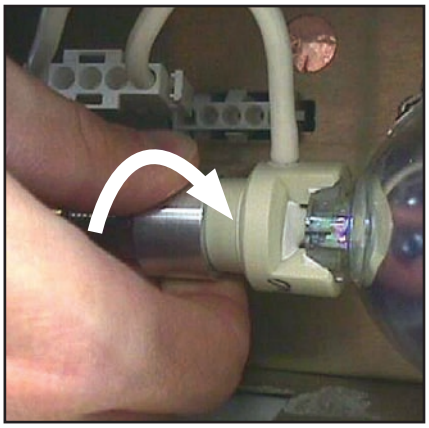
- Unplug the white connector by a simultaneous pressure on both of the sides of it.

- Unscrew manually the metallic knurl which holds the lamp (if there is a nut, don't loosen it).



- Remove carefully the lamp from its stand by pulling it aft.
- Then put the new lamp in the same position as the former one, according to the opposite proceedings.
- It's not at all necessary to screw or unscrew the nut behind the wheel.

Warnings and precautions

- Don't let any fingers mark on the lamp! Use gloves.

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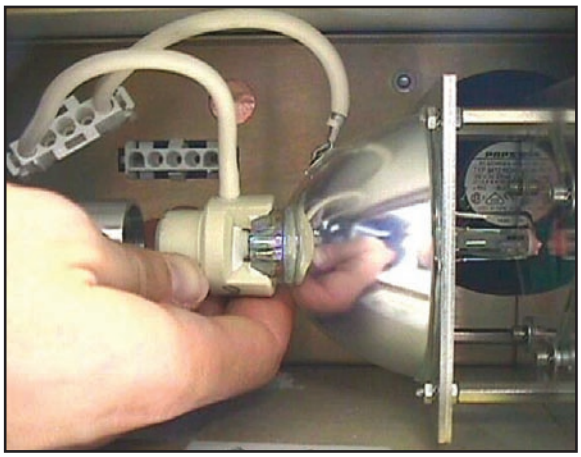
- Control the right position of the lamp.
- Always be careful to have at least one replacement lamp in stock.



Reset of the time meter

- After changing a lamp, you have to reset the time meter:
  - control that the light source is on "Standby"
  - press simultaneously the two brightness buttons for ten seconds.
- The time meter must be reset.

Remark:

- The usual lasting of the lamp is : 500 hours. It's an average for **30 min. ON and 15 min. OFF**
- Shorter utilizations can reduce the lasting in a significant way.

The technical data is:

Rated lamp current	A	16
Rated lamp wattage	W	300
Initial voltage range	V	14 ... 19
Ignition voltage (cold/hot)	kV	Max. 20/max. 20
Colour temperature	K	Approx. 6.200
Colour rendering index	Ra	>95
Beam to axis angle	deg	Max. 30
Length l	mm	Max. 80
Length p	mm	Max. 30
Length r	mm	Max. 62
Reflector diameter D	mm	Max. diam. 82.5
Diameter d1	mm	Diam 31

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7. In case of breakdown

No particular maintenance is necessary for this light source. Actually, it's enough to control the brightness intensity produced by the source and to change the lamp if necessary.
Nevertheless you might be confronted with a minor incident during its utilization.
Here above the causes and consequences of incidents which you could easily cure are listed.
In all the other situations, please contact our After Sales Service that will be able to help you as soon as possible.

No signal of the front panel lights up when you switch the source on
- Control if the mains outlet on the rear face of the light source is rightly connected up to the network.
- Control the good working order of the fuses (use only fuses as specified on the rear face : T4A).

The front panel of the light source lights up but the brightness flow is insufficient
- Control if the iris isn't totally closed by pressing the right button.
- Control the working order of your light cable and of your optics.
- Change your lamp.

The images produced are too clear
- Control if the iris isn't too opened.

There is no more light but the fan works and the led of the 2 brightness buttons flash
- The light source has a safety system which stops the power supply of the lamp if the inside temperature of the source is too high. When the light source has finally cooled, it can be switched on again.
  - Control if there's enough space all around the light source to allow a good cooling (15 cm on each side).
  - Control that there isn't any obstacle to the ventilation on the rear face of the source.

- If the defect is persistent and if you have to send us back the light source, take care of sending it in its original packing. Then it's better to add your light cable to the packing so that we can examine your outline.

- In such a case, it would be kind of you to add to your delivery note a little explanation regarding the defect you have noticed.

- When you will receive your equipment, it will be advisable to control its working order and enter reservations in respect of the transport note if necessary. Then you will spare 48 hours to confirm them by registered letter to the carrier. After this delay, the carrier will be able to refuse those reservations.

- If an equipment sent by us is damaged during its transport, the amount of the repair will be charged either to the carrier if the reservations have been entered within the required time, or to the consignee in the opposite case. So remember to control as soon as possible the good working order of the equipment which has just been carried.

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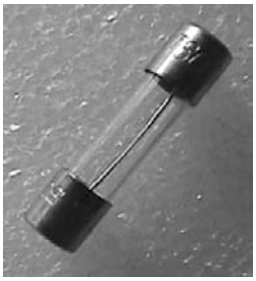
8. Pieces list

Description	Photographs
FUSE T4A	
BLOC ALIMENTATION	
HATCH	

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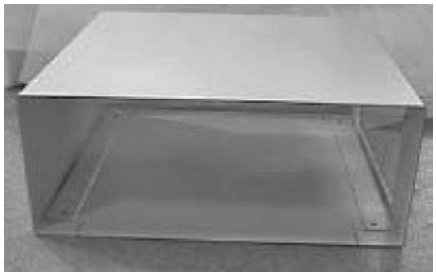
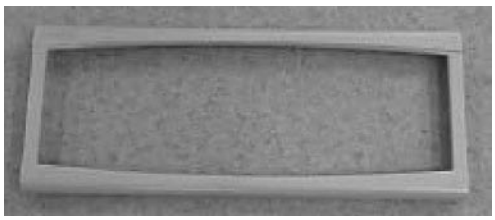
Description	Photographs
MO XENON IRIS (Servomotor + IRIS)	
XENON JACKET	
XENON FRAME	

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Description	Photographs
SHORT STORZ CONNECTOR	
WOLF CONNECTOR	
SHORT OLYMPUS CONNECTOR	

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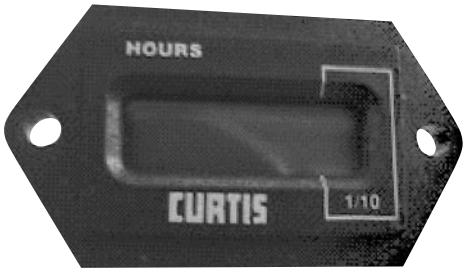
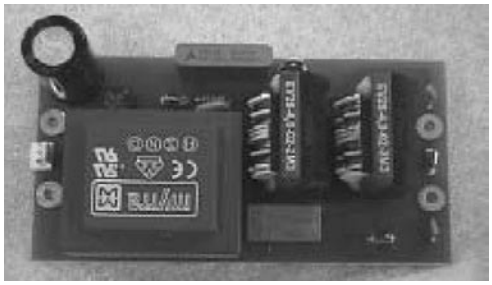
Description	Photographs
REAR FAN	
ELECTRIC TIME METER	
FILTER BOARD	
STANDBY BOARD	

LIGHT SOURCE LX2300 (Xenon 300W)

Description	Photographs
PUSU BUTTON BOARD	
S300 POWER SUPPLY	
300W CENTRAL FAN	

CE conformity label in compliance with the requirements of the guideline 93/42/EEC

serving healthcare worldwide

RUDOLF MEDICAL GmbH + Co.KG · **mail@rudolf-med.com**
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