



ZAP Lighting

BigLite 4.5K (7K) userguide - V 2014

SuperBig

End User Manual



General Features



ZAP Lighting

BigLite 4.5K (7K) userguide - V 2014

[BigLite 4.5K (7K) userguide]

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Overview

The BigLite 4.5K is an automated projector designed exclusively for professional use. It can be used only by technicians with expertise in Xenon lamp technologies and high power automated projectors.

This user guide must be read entirely before any use or repair attempt.

The BigLite 4,5K was designed to be used in the following conditions:

- room temperature ranging from -10°C to $+45^{\circ}\text{C}$ / 14°F to 113°F
- outdoor temporary use (festival, concert, etc.) as opposed to permanent outdoor IPX4 use (architecture).

[The BigLite 4.5K Xenon]

• **General features**

The BigLite 4.5K projector is a stage luminaire fitted with a Xenon lamp and offering the following automated functions:

- 630° pan powered by DC motor,
- 230° tilt powered by DC motor,
- Three dual gel/filter scroller cassettes powered by DC motor,
- One shutter cassette powered by DC motor,
- Focus by moving the reflector powered by DC motor,
- Dimmer (management of beam intensity) : 0-10V,
- Xenon lamp powered by external electronic ballast.

• **Operating power**

- The Ballast – Powering the lamp

Zone	Volts	Frequency	Connection	Maximum consumption	DC output (A)	DC output (V)	Fuse Protection
Europe	400V	50 Hz	3 phases + G + N	13,5 A	45 – 150 A	20 – 35 V	20 A temporized
USA	208V	60 Hz	3 phases + G	26 A	45 – 150 A	20 – 35 V	40 A temporized

- Standalone BigLite 4.5K projector

Zone	Volts	Frequency	Connection	Maximum consumption
Europe	230 V	50 Hz	1 phase+ G + N	1,5 A
USA	208 V	60 Hz	2 phase + G	1,5 A



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The BigLite 4,5K « keywords »

- *Overall view*





• **TopBox or Tripod**

The BigLite 4,5K base is also called « *TopBox* » or « *Tripod* ». It has three main components. Each one of those three subsystems is protected by an ABS cover and fitted with one handle.

NB: The projector must not be turned on without the tripod covers.

Those three main parts are:

1. **Part # 1 fitted with the « display » module**

From this panel, you have access to all the projector functions. For more details, please refer to the « *DMX features* » chapter.

This part also contains the mother board.

Display / LCD



Mother board CPU



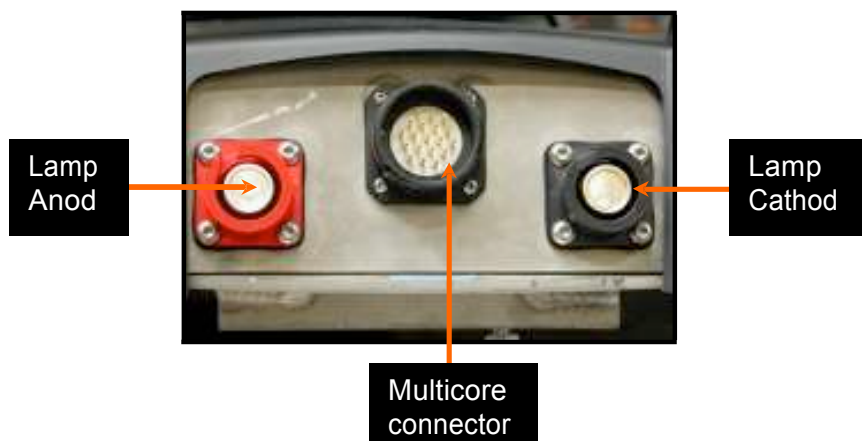
2. **Part # 2 fitted with the « connectors »**

This panel is fitted with 3 connectors:

- 2 ITT/SnapLock 200 A connectors for DC powering of the Xenon lamp:
 - 1 red connector: lamp + (anode),
 - 1 black connector: lamp – (cathode).
- 1 Diconnex CEEP connector, 19 pins multiconductor taking care of:
 - DMX data link,
 - Data feedback,
 - 0/10 V,
 - AC 208 V power (ignitor, fans and transformers).



Lamp connectors



3. Part # 3 fitted with the projector serial number

This part also houses the 2 transformers powering BigLite 4,5K vital components.

Description	Primary	Secondary	VA	Fuse protection
Transformer # 1 Accessories and fans board power	208 – 230 V	22 V	180 VA	1,6 A temporized
Transformer # 2 CPU Board power	208 – 230 V	22 V	180 VA	1,6 A temporized

24V power

Transformer # 2:
CPU Board power

BigLite 4,5K serial number

Transformer # 1:
Accessories &
fans board power



The base also is fitted with the following components:

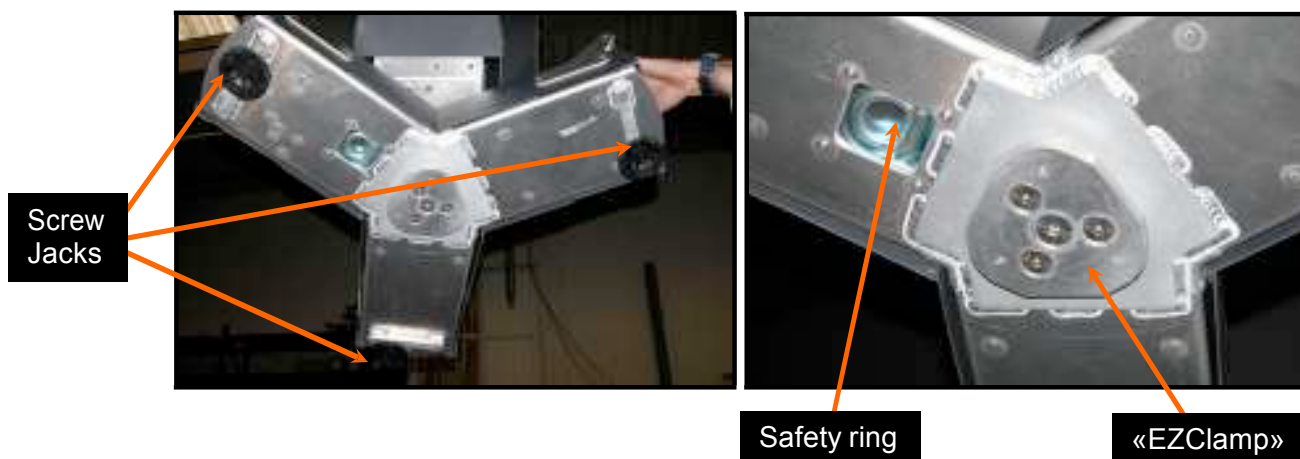
- The «EZClamp » safety device:
One triangular plate is directly fitted on the Pan axis, under the Tripod. This plate is designed to house the EZClamp hook.
One removable safety ring is integrated at the bottom of the base to allow the projector to be secured with a safety cable.



Please refer to the « setting up the projector / the EZ Clamp hook » chapters.

Adjustable feet

EZ Clamp plate



- Levelling:

The BigLite 4,5K is fitted with three adjustable feet allowing the projector to be finely tuned in a horizontal position. One surface level is also fitted at the end of one leg.

Adjustable feet

Surface level





- **Yoke**

The Yoke is a single arm yoke allowing an easy access to all the features enclosed in the projector body. This solid welded/mounted aluminium structure is protected by two ABS covers.

Yoke front and rear covers



NB: those covers should always be in place before switching on the projector.

An inbox lifting ring is fitted on top of the yoke. It allows the Biglite 4,5K to be lifted for an easy maintenance or for an installation away from its flight case.

NB: This handling must be done only by qualified and trained technicians.

Warning: the BigLite 4.5K slightly bends when extracted from its flight case. **You should always check the capacity and the safety compliance of your handling tools (> 200kg).**

Lifting hook



BigLite 4,5K being lifted





- **Front cover of the projector body.**

This ABS cover supports the security protection glass. It must be fixed with 4 rubber screws on top and 4 Phillips screws below.

NB: While handling the projector, you should always check that the protection glass is in perfect condition and perfectly maintained.

This cover must be fitted before switching on the BigLite 4,5K or its lamp, (Cf. specific conditions of use of Xenon lamps).

Front cover



Front cover screws



2 screws

- **Access trap door to the cassettes (scrollers - shutter and focus electronics)**

This trap door is made of ABS. With the help of two Southco quarter-turn fasteners, you can access to:

- 3 scroller cassettes,
- 1 shutter cassette,
- The support for the focus electronic board and for the reflector setup electronic board.

The safety cable must be strapped on the projector body before closing this trap door with the two Southco quarter-turn fasteners.

NB: This trap door must be closed before switching on the lamp (Cf. specific conditions of use of Xenon bulb).

Opening the trap door



2 Southco quarter-turn fasteners

Safety cable



Safety cable



- **Rear cover of the projector body**

The rear cover protects the Lamp housing which houses the lamp. This ABS cover houses 2 ventilation grids at the back and two large ones in the front, allowing air extraction. **This cover should never be used without those ventilation grids.** To access the lamp housing, this cover must be taken out with the 4 Phillips screws.

NB: This cover has to be put back in place as soon as the lamp is in the Lamp housing (Cf. specific conditions of use of Xenon lamps).

Rear cover



Rear cover fasteners



- **The EZ Clamp**

The EZ Clamp is a unique feature of the BigLite 4,5K projector. This handling device can be used for various applications. Please refer to the « *Projector setup* » chapter.

The EZ Clamp





Pan and Tilt movements

- **Description**

The range Pan movement is 630°.

The range Tilt movement is 230°.

You should stay at bay when switching on the projector and whenever those movements are made full speed (memory play back).

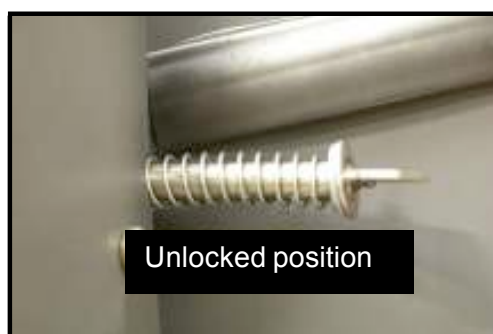
NB : The electronic mother board automatically shut down motor powering when those movements are encountering any kind of physical resistance. This automatic safety procedure can only be overcome by sending a new command from the light control console.

- **Tilt and Pan locking systems**

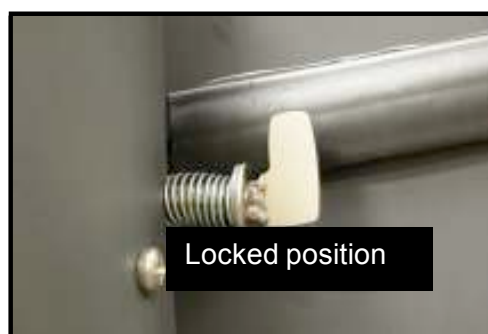
Important: both locking processes should commence only when the projector is switched off. The Tilt and Pan locking systems should always be unlocked when switching on the projector in order to allow the projector to reset. The Pan axis can be locked on three different positions. The Tilt axis has two locking positions.

NB: Before switching on the projector, a check has to be made to verify the two locking bars are on the unlocked position.

Unlocked position



Locked position



Tilt and Pan axis can be locked in order to facilitate transport, handling or any maintenance action. Please refer to «Setup and Switching on the BigLite » chapters.



Scrollers

• Description

The scrollers are removable autonomous cassettes. Only the colour (gel roll) determines its position. The three scroller cassettes are positioned from top to bottom as follows:

Scroller cassette # 1	Magenta
Scroller cassette # 2	Cyan
Scroller cassette # 3	yellow

The three scroller cassettes



One scroller cassette



• Internal handling

To access a scroller cassette (and other features), take off the ABS access trap door cover.

The trap door



Safety pin



Scroller cassettes can be extracted or inserted while the projector is switched on.

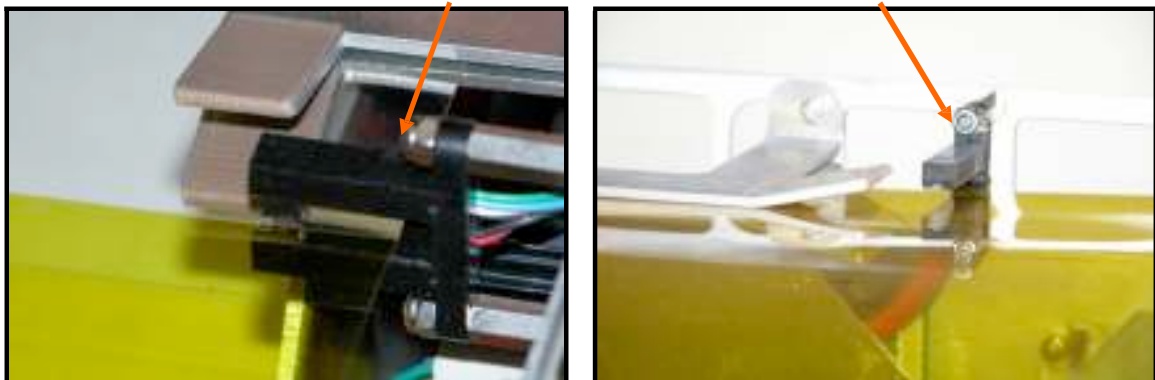


When extracting the scroller cassette, the safety pin must be lifted. When inserting a scroller cassette, the following points should be checked:

The gel roll must be:

- a) correctly positionned,
- b) held with the right tension,
- c) well adjusted in its housing sensor,
- d) matching with the scroller cassette electronic board colour and position.

Scroller electronic sensor



When those checkups are done:

1. lift the safety pin,
2. introduce the scroller cassette in the two tracks,

Introducing the cassette holding the safety pins



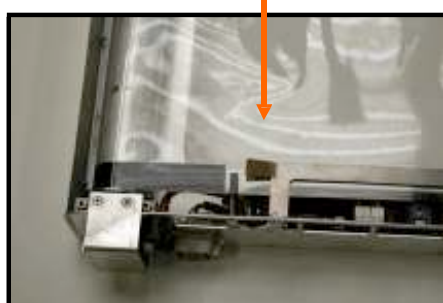
3. push the scroller cassette in its rack,
4. check that the Harting connector is well inserted in the female part of the projector body frame,

Release the safety pin and check that it is well inserted in its casing. If the power is on, the scroller cassette will automatically reset. The roll will automatically go on gel position # 1 (clear) if there is no DMX signal or on any other position according to the DMX signal.

Please refer to «Scroll description» chapter.



Gel clear position # 1 when no DMX flow



NB : the access trap door must be shut with the safety cable as soon as the scroll cassette handling operation is over. **Before starting any scroller cassette handling, check that nobody else is in command of the DMX control system. Beware of full speed Pan and Tilt movements when handling scroller cassette.** This handling must be done only by qualified and trained technicians.

• Scroller cassettes attribution

Scroller cassettes are assigned with the grey coding wheel of the module electronic board. Please refer to the following table:

Designation	Colour	Module number
Scroller cassette # 1	Magenta	1
Scroller cassette # 2	Cyan	2
Scroller cassette # 3	Yellow	3
Shutter cassette		4
Focus module		5

The attribution is done:

1. When the power is off,
2. Once the scroller cassette is removed,
3. With a small flathead screwdriver.

A wrong attribution or a wrong housing of any scroller cassette has no destructive or disruptive effect.

Scroller cassette number attribution





• **Loading a new gel roll in the scroller cassette**

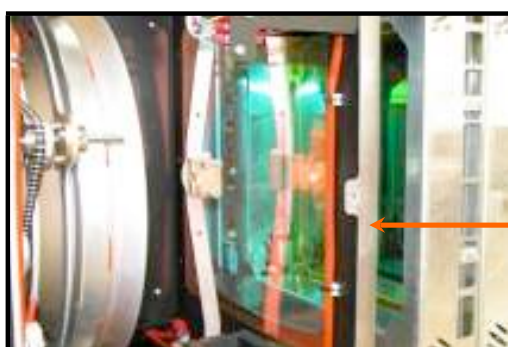
Checking that the gel roll is fully compliant with Zap Technology standards is compulsory. A roll with slightly different dimensions or a bad positioning of the black Mylar sensor tag can damage the mechanics, the motor or the electronic board. This is the reason why Zap Technology advises to use only BigLite 4,5K gel rolls.

1. **Gel protection:**

Life expectancy of a BigLite gel roll is increased by:

- A cold mirror reflector,
- Zap Technology UV and IR glass coating filter,

Anti UV and anti IR filters



Anti UV and anti IR filters

- Dedicated cooling system for each cassette.

2. **Different types of gel rolls.**

Zap Technology is offering 2 different types of colour mixing:

1. Standard colour mixing, called Gels CMY Version.

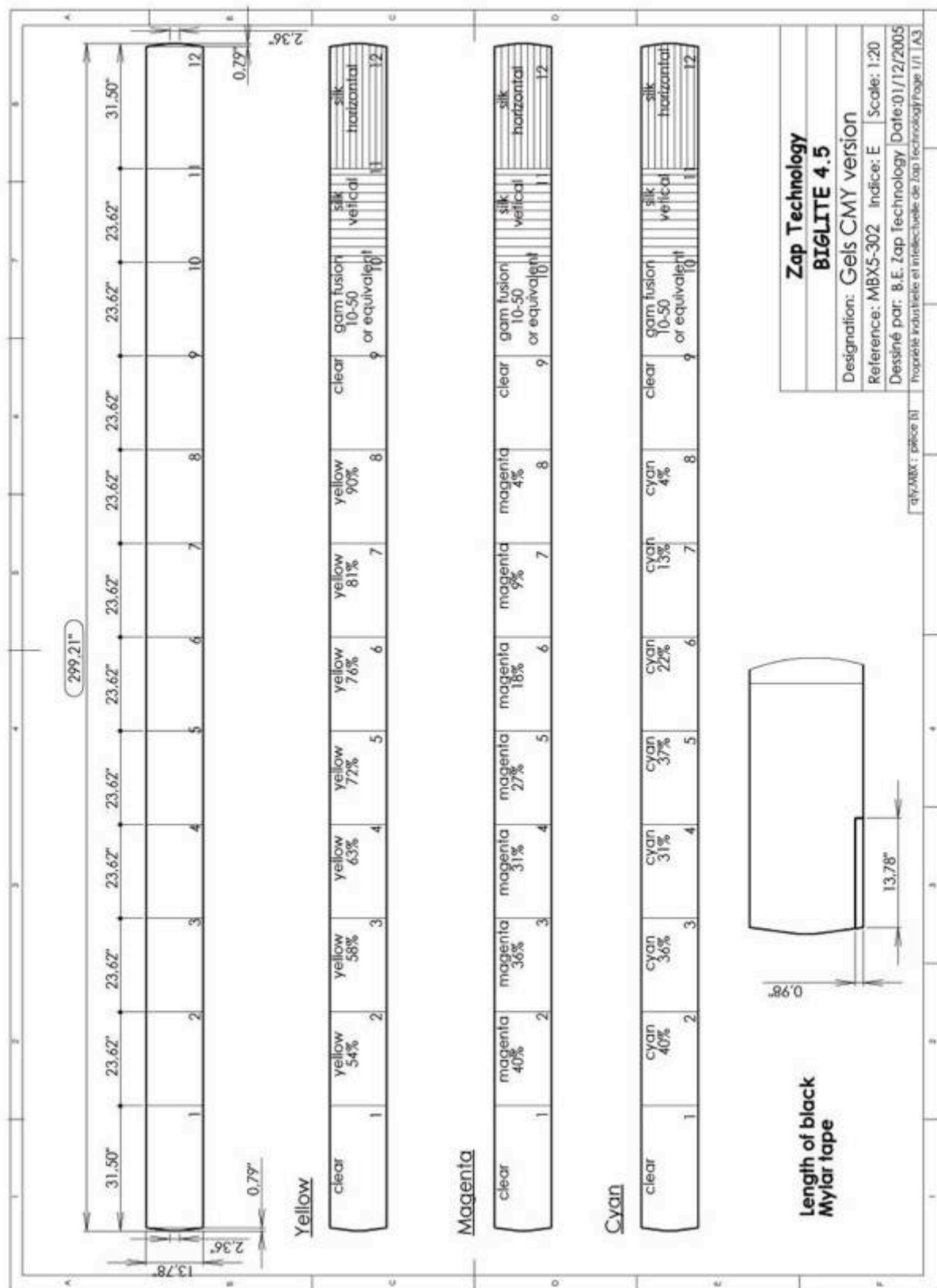
Designation	Colours
Scroller cassette # 1	Magenta
Scroller cassette # 2	Cyan
Scroller cassette # 3	Yellow



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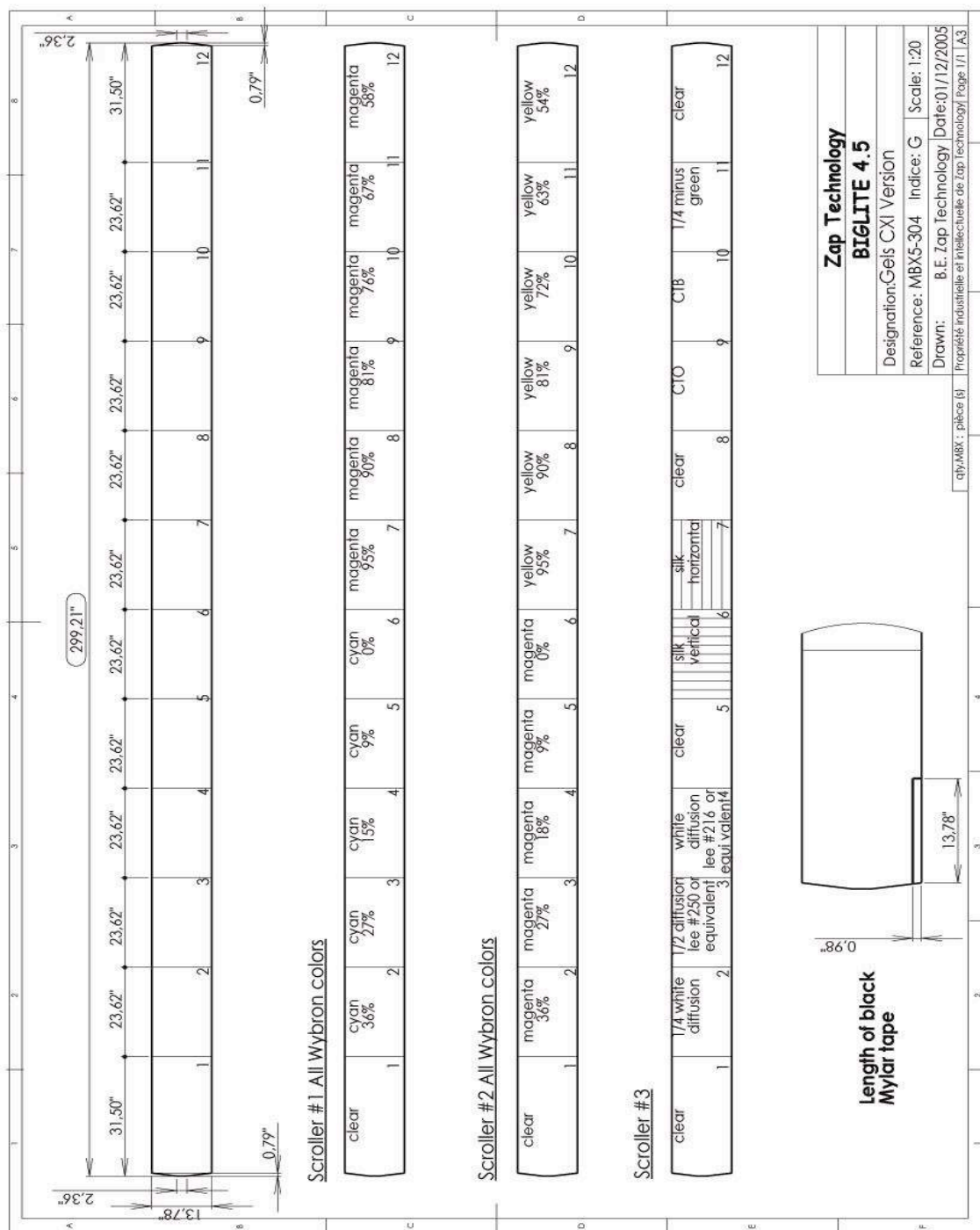
Zap Technology standard gel rolls





2. A colour system called Gels CXI Version

Designation	Colours
Scroller cassette # 1	Cyan - Magenta
Scroller cassette # 2	Magenta - Yellow
Scroller cassette # 3	Diffusion - Beam shapper - effects





3. Roll description

Whatever the type of gel rolls, they **must respect** the Zap Technology specifications.

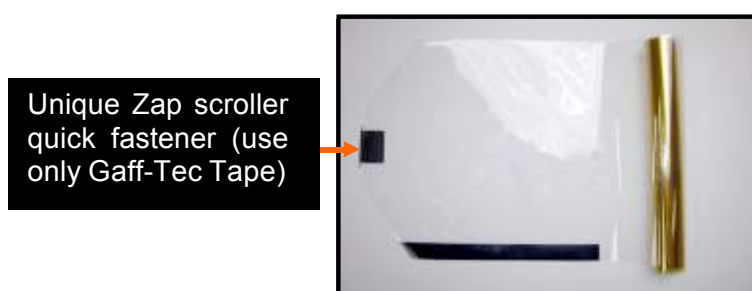
4. Loading a gel roll

Gel rolls should be loaded in the scroller cassette only by qualified and trained technicians according to the following process:

1. The scroller cassette must be taken off its rack from the projector body,
2. The cassette power must be off,
3. The gel roll must be checked:

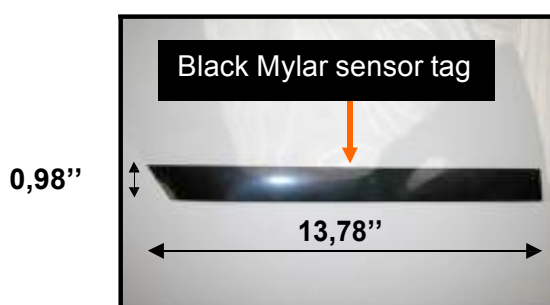
- BigLite quick fasteners at the beginning **AND** at the end of the roll.

Scroller quick fastener – motor tube side



- Correct positioning of the black Mylar sensor tag.

Black Mylar sensor tag



- Each gel film is perfectly tapped
4. Position the sensor tag of the gel roll near the electronic sensor of the motor tube. Adjust the sensor tag fasteners of the gel roll in the dedicated housing located in the middle of the motor tube.



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Motor tube



Engaging the quick fastener on the motor tube



5. Wind up the gel roll around the motor tube.

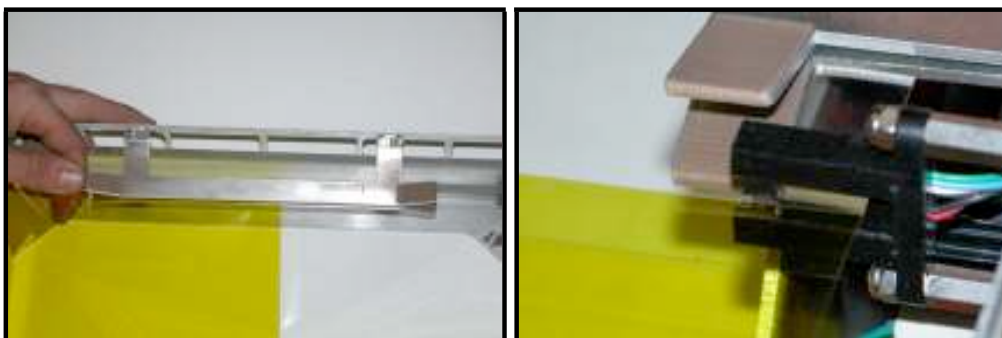
Winding up the gel roll around the motor tube





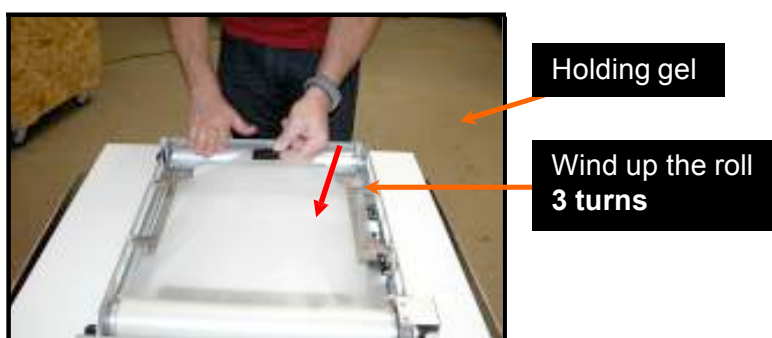
6. Insert the gel into both top and bottom guidelines. Make sure that it is engaged into the electronic sensor fork. Hold the roll in one hand and pull.

Inserting the gel into guidelines and the electronic sensor



7. With the other hand, wind up the roll 3 times around the tension tube towards the interior of the scroller cassette.

Winding up the roll



8. Attach the second fastener into the housing located in the tension tube.

Fastening the roll on the tension tube



9. Release the tension tube.
10. Check the gell string tension.



11. Check the good gell string position inside fork of optical sensor.
12. Switch on the power. No specific action is needed to calibrate the roll. An electronic calibration is automatically done. The roll will position itself on gel position # 1 (clear) when there is no DMX signal or on any other gel position according to the DMX signal.
13. DMX management of cassette scrollers is done by:
 - DMX linear mode from 0 to 255,
 - Cut mode (*refer to user manual*).

• Maintenance

Gel rolls are consumables. Gel can wear down mechanically, so it is important to regularly check its condition. It is possible to change one frame of gel only. You should always store your old gel strings.

Shutter

• Description

The shutter cassette is a removable autonomous cassette.

• Handling of the shutter

You need to take off the ABS trap door cover to access to the shutter cassette.

Shutter access trap door



Safety Pin



Shutter cassette can be extracted or inserted while the projector is switched on. The safety pin must be lifted before extracting the cassette.

When inserting a shutter cassette, some checks have to be run through:

1. metallic blades are not damaged,
2. the attribution of the shutter electronic board is correct,
3. the software is compliant with the type of machine.

When those checkups are done:

1. lift the safety pin,
2. introduce the shutter cassette in the two tracks,



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Cassette position in its rack



3. push the shutter cassette in its rack and check that the Harting connector is well inserted in the female part of the projector body frame,
4. release the safety pin and check that it is well inserted in its casing.

Beware not to hit the UV and IR glass protection. You should always be very careful with this glass. Do not hesitate to change it even in the case of minor alterations.

If the BigLite 4,5K is switched on, the shutter cassette will automatically reset. The blades will automatically go on closed position if there is no DMX signal, or on any other position according to the DMX signal.

Shutter blades in closed position with no DMX flow



IMPORTANT: Do not proceed this operation when the lamp is switched on!

NB: the access trap door **has to be closed with the safety cable** as soon as the shutter cassette handling operation is over. Before starting any shutter cassette handling, **check that nobody else is in command of the DMX control system. Beware of full speed Pan and Tilt movements** when handling shutter cassette. This handling must be done only by qualified and trained technicians.



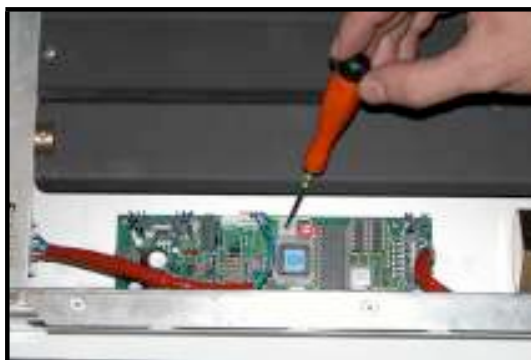
• **Shutter cassettes attribution**

The shutter cassette is assigned with the grey coding wheel of the module electronic board. Please refer to the following table:

Designation	Colour	Module number
Scroller cassette # 1	Magenta	1
Scroller cassette # 2	Cyan	2
Scroller cassette # 3	Yellow	3
Shutter cassette		4
Focus module		5

The attribution is done with a small flathead screwdriver when the power is off. A wrong attribution of the shutter cassette has no destructive or disruptive effect.

Assigning the shutter cassette with a small flathead screwdriver



• **Maintenance**

No specific maintenance is needed. Nevertheless, the following points must be checked regularly:

1. Blades condition and lack of rubbing,
2. Blades axis located in the lower part of the cassette don't have any hard points and are correctly greased. Zap Technology recommends Compound Silicone grease,
3. LED is lighted when shutter resets.
4. You should always store your shutter cassettes in a place where they don't risk any fall or impact.



Focus module and reflector

• Overall description

The focus module is an independent part which holds the reflector. This reflector is mobile along the three X, Y and Z axis.

X and Y axis are managed by two independent motors directly driven by the BigLite 4,5K display or by any DMX console.

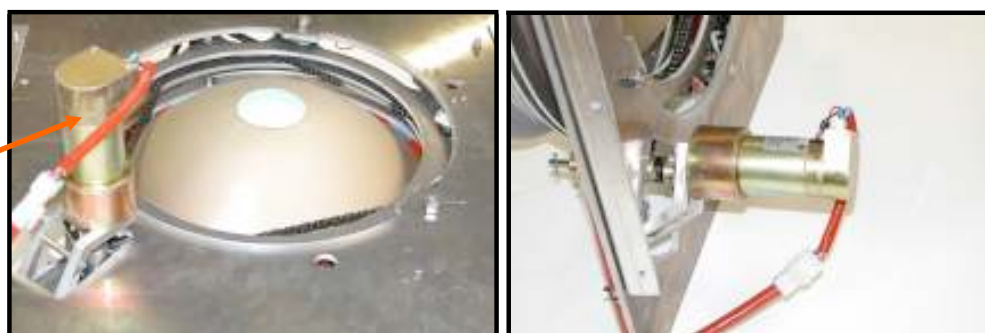
X & Y axis motors



X & Y axis motors

The Z axis allowing the zooming function is moved by a chain mounted on three Speedy screws.

Z axis chain motor



Z motor

This technology allows remote alignment of the lamp.
The reflector can move around the lamp to optimise the light flow and the beam quality.
Xenon lamps are fragile.



This unique lamp support feature (mounted on shock absorbers) also allows the BigLite 4,5K projector to be safely transported with its Xenon lamp still inside.

The focus module is localized in the Lamp housing.

The focus module



- **Parabolic reflector description**

The BigLite 4,5K reflector is a dichroic cold coating mirror parabolic reflector. It allows the temperature to cool down towards the rear of the projector, thus avoiding any premature wear down of the gels.

Dichroic Cold Coating: (DCC)

A hybrid coating developed for illumination applications such as motion picture projection systems. A high reflectance dichroic coating for the visible spectrum is combined with an infrared absorbing component, **allowing over 75% of the infrared (heat) energy to be absorbed into the reflector. With a reflectance of over 95% in the visible range**, the elimination of most of the infrared in the downstream optical train, and exsensorent durability.

- **Handling inside the Lamp housing**

IMPORTANT: This task should never be undertaken when the Xenon lamp is in the Lamp housing even if the lamp is switched off.



You can access to this feature once you have taken out:

- the rear ABS BigLite body cover,

Removing the rear cover



- the aluminium protection cover of the Lamp housing,

Removing the Lamp housing aluminium protection cover



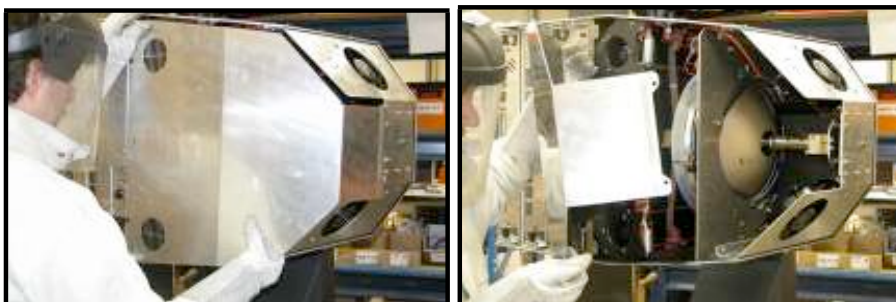
You should take all necessary precautions.

Before removing the protection plate, **you should read carefully all warnings written on it.**





Removing the protection plate



NB If a Xenon lamp is still in the Lamp housing, it is necessary that a duly appointed technician takes all necessary precautions to handle this type of lamp, i e :

- Keep other people at bay,
- Wear garment adapted to this operation,
- Wear leather gloves and mask,
- Put the lamp in the protective housing delivered by the lamp manufacturer.

Once the extracted lamp has been placed in its protective housing, you have an easy access to the focus cassette.



DISMANTLING

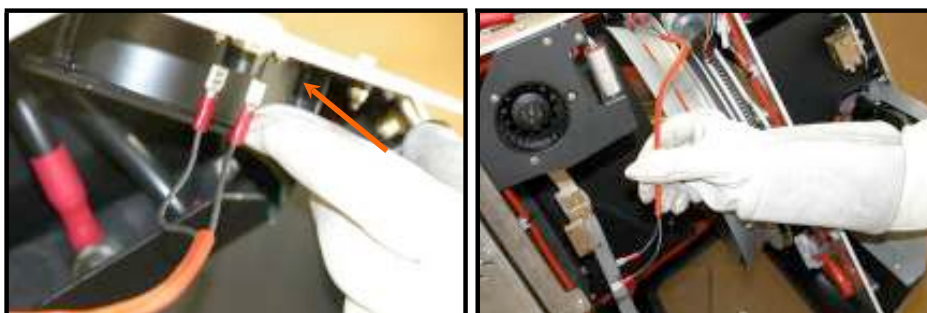
1. Use the chain to take the parabolic reflector to the rear of the Lamp housing,

Moving the reflector



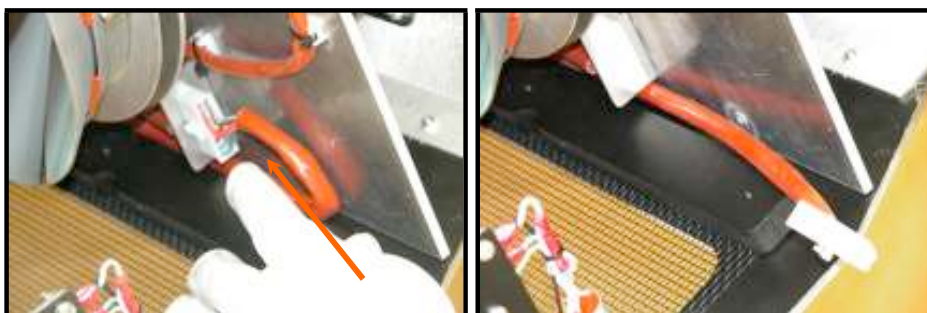
2. Unplug the two temperature sensor wires,

Unplugging the temperature sensor



3. Unplug the Molex plug,

Unplugging the Molex plug





4. Unscrew the 6 screws,

Unscrewing the screws



Focus module screws

5. Take out the module taking care of the Pittman motor.

ASSEMBLING

1. Keep the reflector inside,
2. Screw the 6 fastener screws,
3. Plug in the Molex plug – the temperature sensor,
4. Test the focus module,
5. When The BigLite 4,5K is switched on, the focus module automatically resets. The reflector comes to a stop at the rear of the Lamp housing. The reflector stays in that position if there is no DMX signal or in any other position according to the DMX signal.
6. When the test is over, install the lamp with all necessary precautions,
7. Close the aluminium protection,
8. Fix the rear cover.

• **Focus module attribution**

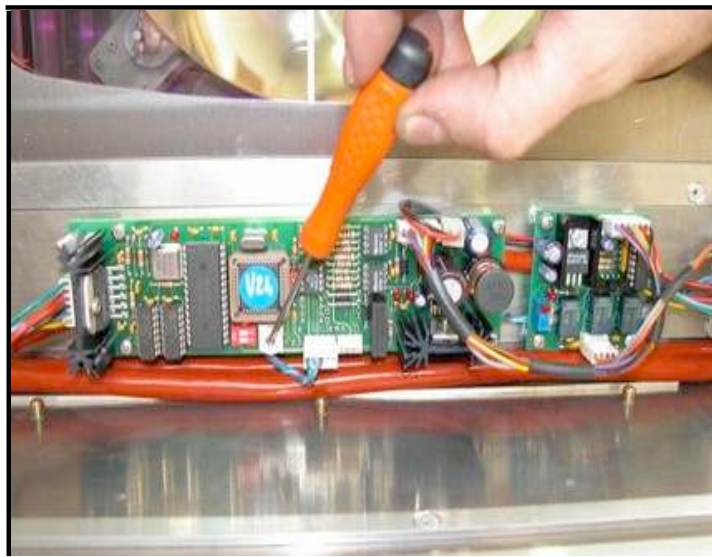
Focus modules are assigned with the grey coding wheel of the module electronic board. Please refer to the following table:

Designation	Colour	Module number
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Scroller cassette # 3	Yellow	3
Shutter cassette		4
Focus module		5

The attribution is done with a small flathead screwdriver when the power is off. A wrong attribution of the focus module has no destructive or disruptive effect.



Assigning the focus
module



• **Maintenance**

1. Cleaning the parabole.

The reflector is fitted with a particularly efficient coating. This coating requires specific care:

- Do not use:
 - a. Scouring or acid agents,
 - b. Abrasive solutions.
- **Use only:**
 - c. **Clean chamois leather. Always proceed with concentric rotating movements,**
 - d. **Glass cleaning: Alchool 90°C**

2. Elements to be regularly checked

- a. **Chain tension,**
- b. **Greasing of moving axis.**



The lamp

• Description

Zap Technology recommends to use the OSRAM XBO 4.5Kw lamp for the BigLite 4.5K.

Technical Information

No. FO 5041
Edition: 03/02 - subject to change
Substitutes: Edition 02/ 02
Status: preliminary

Xenon Short Arc Lamp

XBO® 4500 W/HS OFR

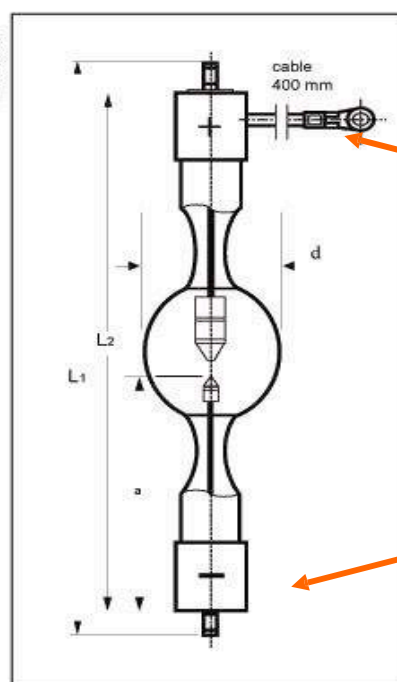
■ Product description

The OSRAM XBO® 4500 W/HS OFR is a DC-operated lamp that is especially suited for applications requiring excellent arc stability and a high luminance. The OSRAM XBO® 4500 W/HS OFR is designed for horizontal burning position (H = horizontal, S = short).

■ Technical data

Order reference	XBO® 4500 W/HS OFR	
Rated lamp wattage	W	4,500
Rated lamp voltage	V	32
Rated lamp current (=)	A	135
Current control range	A	80 - 150
Ignition voltage	kV _p	36
Min. open circuit voltage for cold / hot ignition	V	85 / 110
Luminous flux	lm	190,000
Luminous intensity	cd	22,000
Average luminance	cd/cm ²	95,000
Luminous area w x h *)	mm	1.9 x 6.0
Electrode gap e (cold)	mm	7,0
Lamp length (overall) l ₁	mm	max. 410
Lamp length l ₂	mm	max. 370
LCL a	mm	171,0
Bulb diameter d	mm	70
Average service life	h	1,000
Base	Cathode:	SFa 30-7,9
	Anode:	SFa X 30-9,5

*) w = luminance half width value; h = height of luminance area (corresponds to electrode gap, hot)



Anode

Cathode

■ Lamp operation

Maximum permissible base temperature	230°C
Cooling	forced cooling / fan
Min. air flow velocity around discharge vessel	6 m/s
Magnetic arc stabilization	necessary for horizontal operation
Burning position	s 15 (vertical ± 15° ; anode up) ; p 15 (horizontal ± 15°)



Handling of OSRAM XBO® lamps

Mechanical installation

XBO® lamps are extremely reliable and robust. But they are still made of quartz and need to be handled accordingly – in other words they must be protected against shock, impact and excessive force.

Certain precautions must therefore be observed when handling them:

- All XBO® lamps are supplied in a safety cover. This protects users from possible spontaneous or induced bursting of the lamp. You should handle lamps only with safety cover. Store this safety cover for use during the removal of the lamp at the end of its service life.
- You should wear leather gloves covering the arteries and veins of your wrists and protective goggles or complete face protection covering the arteries and veins of your neck, such as a transparent plastic mask. See safety instruction send with every lamp.
- For some types of lamp the safety cover acts as a tool for fitting the cathode end of the lamp into its holder.
- Under no circumstances must force be exerted on the lamp during installation: For example, screwing in the cathode base by holding and turning the lamp at its anode base is grossly negligent.
- The lamp may only be clamped in position at one end, in order to allow for expansion and distortion of the housing. Small (short) lamps can be left free and unsupported at the other end. Larger (longer) lamps must have a soft, flexible support. It should support the lamp but allow unrestricted expansion, including expansion perpendicular to the lamp axis.
- Lamps may only be stored if suspended freely from their bases inside their safety covers. Leaving them to roll around unprotected on a desk or shelf can result in microcracks in the surface of the quartz glass, and burst lamps later on.
- If the lamp is inadvertently operated inside its safety cover, the sleeve will melt within a few seconds and the lamp will be unusable.
- When removing lamps, the reverse procedure must be followed: first put the safety cover or some protection around the lamp, then remove the lamp.

Electrical connection

Similar precautions must be observed for connecting XBO® lamps electrically as for handling them mechanically:

- Lamps without a cable connection often have their "loose" end connected to the supply unit with a gripping device. In these cases the gripping device must be fastened first, and only then can the lamp be fixed in its permanent connection, even if this is somewhat complicated. Otherwise there is a risk of unintentionally exerting strong bending forces on the lamp and it may break.
- The lamp must be connected electrically by means of the base components provided for this purpose, for example the base pins or cables. Under no circumstances must the cable be cut and the power supply connection passed through the base sleeve. This can result in a circuit which is not permissible and may result in destruction of the lamp.
- Connecting surfaces must be clean and offer the maximum contact area. In cases of doubt, it is better to recondition or preferably replace the contacts rather than risk lamp failure due to corroded and overheated contacts.
- In most cases good electrical contact is synonymous with good thermal contact to dissipate the heat produced by the lamp. Nickel or chromeplated brass or bronze are the main materials used; other metals such as aluminium are unsuitable.
- Care must be taken to ensure that the lamp is connected with correct polarity; the positive pole of the rectifier must be connected to the base marked "+", the negative pole to the base marked "-". Incorrect polarity results in total lamp failure within a few seconds.



Handling of OSRAM XBO® lamps

Cleaning the lamp

XBO lamps may only be held by the base. If the quartz bulb or the shaft should ever be in contact with bare fingers (which should never happen, because unprotected lamps should only be handled with leather gloves), the fingerprints must be removed immediately. A lint-free cloth moistened with spirit is best for this. After which the lamp should be rubbed dry, taking care not to scratch the quartz glass surface. Damage to the quartz may cause the lamp to break during later operation.

If fingerprints are not removed they burn into the quartz glass surface where they act as a seed

for ever-expanding recrystallization of the quartz. This causes the quartz to lose its strength and increases the risk of bursting.

Transport

XBO lamps are supplied packed in printed cardboard boxes for self storage and in an outer transport packaging. The Shelf packaging is; freely suspended and mechanically cushioned; in this condition lamps can be sent by mail without any problem.

Most lamps will break if transported in the Shelf packaging only.

XBO lamps withstand the stresses of transport best if they are sent individually in a vertical position. Their resistance to sudden shocks is about ten times greater along the lamp axis than perpendicular to it.

If X80 lamp housings have to be transported, the lamps - especially high wattage lamps - should be removed and transported separately in their original packaging.

Disposal

Burnt-out XBO lamps can either be returned to the manufacturer for appropriate disposal by methods consistent with modern recycling or they can be destroyed by the user.

Prior to destruction the lamps must be wrapped in a strong, coarse cloth, observing all the precautions given in the section "Mechanical Installation" and broken with a hammer.

The XENON gas that escapes is not poisonous and returns to the atmosphere. The remains of the lamp can then be disposed of as normal rubbish.



The lamp and its protective packaging



The lamp without protection



All Xenon lamp should be **handled with special care**.

Whatever the works needed (changing, maintaining, transporting) **only duly trained technicians should be allowed to handle this type of lamps**.

When the lamp is not installed in the BigLite 4.5K Lamp housing, **it must always stay protected in its original OSRAM packaging**, whether this storage is temporary or permanent.

• **Lamping**

No action should be attempted in the Lamp housing before having taken off the lamp with all necessary precautions. To do so, it is compulsory to wear a leather jacket, leather gloves and one protective mask covering the whole face.

The protective garments





• **Fastening – Supporting**

The lamp is attached to:

1. a flexible stainless steel support at the front of the Lamp housing (anode),

Anode support of the Osram 4.5Kw lamp



2. a soft support mounted on three shocks absorbers at rear.

Shock absorbers mounted cathode support of the Osram 4.5Kw lamp



3 shock absorbers

Lamp holder

This fixing mode allows for safe transport.



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• For lamp Instal/Removal:

Lamp set up

1. Unplug the BigLite 4.5K,
2. Lock the tilt axis into horizontal position,

Locking the tilt axis

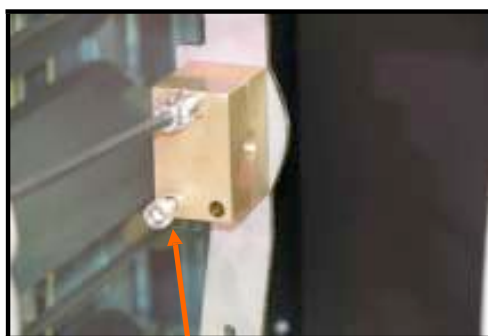


3. Take out the ABS cover,
4. Remove the aluminium protection,



5. Use the chain to bring back the reflector towards the rear of the Lamp housing,
6. Wear all necessary protective garments to handle the Xenon lamp,
7. Unscrew the lamp anode support in the Lamp housing.

Unscrewing the 2 screws of the lamp anode support



Do not Unscrew – Screw keeping the 2 parts assembled



8. Unscrew the lamp cathode support in the Lamp housing,

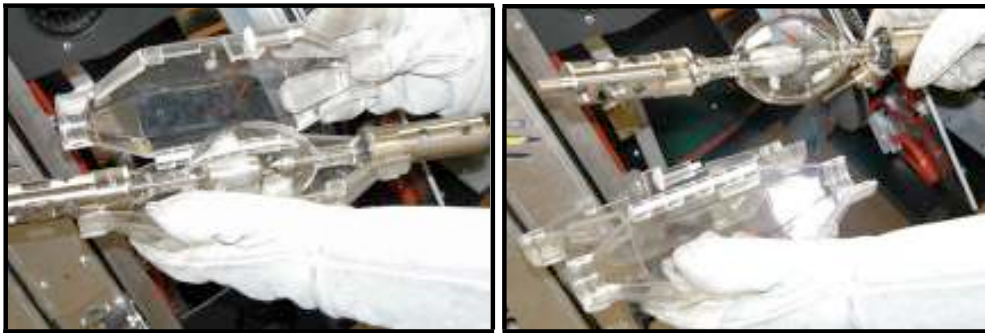
Unscrewing the 2 screws of the lamp cathode support



Do not Unscrew – Screw keeping the 2 parts assembled

9. Take the lamp out of its protection,

Osram 4.5KW lamp original protection



10. Slip the lamp into through the front of the reflector,

Positioning the lamp in the Lamp housing





11. Put the cathode of the lamp to a stop on its support. Then tighten evenly the two BTR fasteners,

Tightening the lamp cathode support



12. Tighten firmly the anode of the lamp,

Tightening the lamp anode support



13. Close the aluminium protection,
14. Put back the ABS cover,
15. Do not forget to unlock the Tilt axis,
16. Plug the BigLite 4.5K and its ballast,
17. Switch on the ballast and the BigLite 4,5K. Wait till the end of the reset process,
18. Switch on the Lamp.



Lamp removing

The lamp must be switched off and ventilated for 20 to 30 minutes (depending on room temperature) before any handling is attempted.

1. Ventilate the switched off lamp, until completely cool to ambient temp,
2. Unplug the BigLite 4.5K and its ballast,
3. Block the tilt axis in horizontal position,

Unlocking the Tilt axis



4. Wear all protective garments needed to handle Xenon lamps.

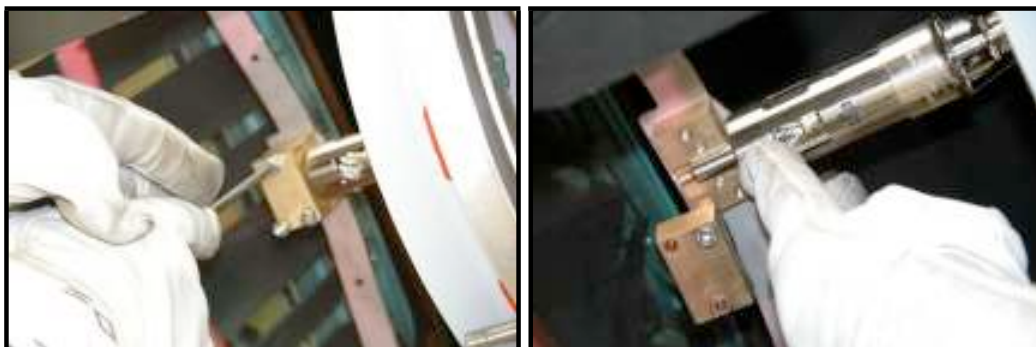
Protective garments



5. Take out the ABS cover,
6. Take out the aluminium protection,
7. Use the chain to bring back the parabola towards the rear of the Lamp housing,
8. Unscrew the lamp anode support in the Lamp housing,

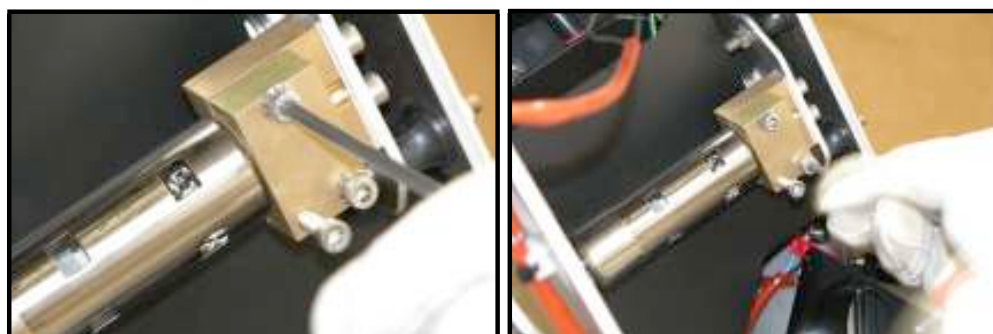


Unscrew the lamp anode support



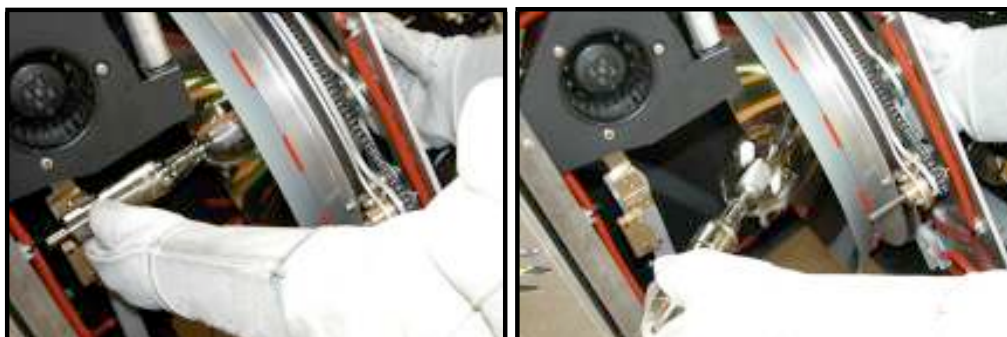
9. Unscrew the lamp cathode support in the Lamp housing,

Unscrewing the lamp cathode support



10. Slip the lamp into through the front of the reflector,

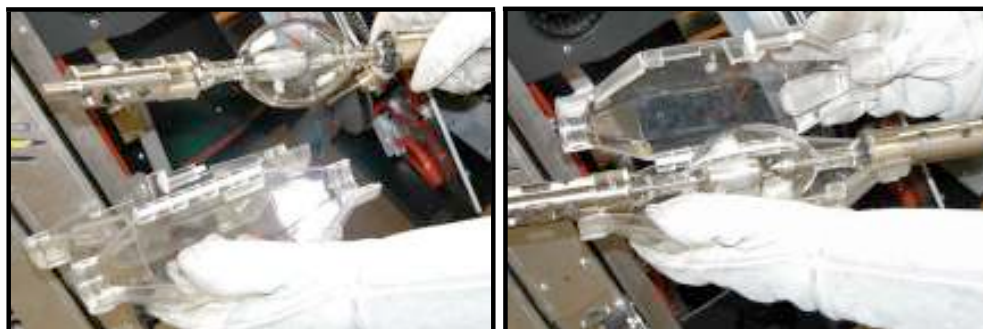
Lamp movements



11. Put back the lamp straight away into its original packaging.



Housing the lamp in its original packaging



The BigLite 4.5K electronic ballast

- **Description**
The ballast



The BigLite 4.5KBallast is an IREM electronic Ballast. It is integrated in a flight case. This Ballast is connected to the general power through a 30 mA differential circuit breaker.

This circuit breaker also supplies:

- BigLite 4.5K projector ventilation,
- BigLite 4.5K projector electronics.

Zone	Standards	Volts	Frequency	Connection	Maximum consumption	DC output (A)	DC output (V)	Fuse protection
Europe	CE	400 V	50 Hz	3 phases + G + N	13,5 A	45 – 150 A	20 – 35 V	20 A temporized
USA	ETL CSA	208 V	60 Hz	3 phases + G	26 A	45 – 150 A	20 – 35 V	40 A temporized



• **Recommandations for use :**

- Do not store the ballast in a humid place,
- Do not use the ballast under the rain with no protection,
- Regularly dust the ballast with compressed air,
- Never switch on a ballast without having tested the current,
- Never substitute a 208 V ballast to a 400 V ballast or vice versa. The warranty would not apply anymore.
- Follow the set up process,
- Never power down the BigLite 4.5K power before the end of its 20 to 30 minutes ventilation cycle.

The DMX

• **Description**

The BigLite 4.5K projector is DMX managed according to USITT standards.

• **From the display menu**



• **Keyboard navigation**

The BigLite 4.5K has a 6 keys control pane allowing navigation in the different menus:

1. The « **menu** » key allows to go up the tree diagram,
2. The « **>** » key allows to scroll up the different menus,
3. The « **<** » key allows to scroll down the different menus,
4. The « **+** » key allows to increase the value of a parameter,
5. The « **-** » key allows to decrease the value of a parameter,
6. The « **ok** » key allows to enter a submenu or to validate a setup.



When switching on the BigLite 4.5K, the LCD display indicates the product software version. This menu is displayed during one second. Then, a second menu called «Welcome Menu» shows up.

Main menus are:

- Welcome menu,
- DMX number changing menu,
- DMX channel visualisation menu,
- Program test menu,
- General configuration menu,
- System command menu,
- Information system menu,
- Show menu,
- Keyboard shortcuts.

Welcome menu

This menu displays the machine status when searching for home positions.

Question marks indicate the system is searching. When both Pan and Tilt home positions are found, the menu indicates « **ok** ».

The DMX number or the machine number is displayed (please refer to configuration chapter).

----- BIG LITE -----
P=OK T=OK DMX=001

DMX number modification menu

----- BIG LITE -----
CHANGE DMX CHANNEL ?

If you click « **ok** » in this menu, you can change the DMX number.

CURRENT CHANNEL=001
NEW CHANNEL =001 <>

- Press the « + » key to increment channel number,
- Press the « - » key to decrease channel number,
- If you hold down the « + » or « - » key, scrolling up or down numbers accelerates,
- Press the « **ok** » key to validate this number.

DMX channel visualisation menu

----- BIG LITE -----
LOOK CHANNEL DMX ?

If you press the « **ok** » key in this menu, you access a screen displaying DMX channels.

REC DMX :003=00 <>



This allows you to test the DMX channels related to the machine.

The channels are displayed with the value of one selected channel:

- Press the « + » key to increment the channel number you want to analyse,
- Press the « - » key to decrease the channel number you want to analyse.

Test program menu

This menu offers several submenus.

Enter those submenus by pressing the « ok » key:

1. Automatic test submenu,
2. Pan test submenu,
3. Tilt test submenu,
4. Colour 1 test submenu,
5. Colour 2 test submenu,
6. Colour 3 test submenu,
7. Shutter test submenu,
8. Focus test submenu,
9. 0/10 V dimmer test submenu.

1. Automatic test submenu

Allows you to automatically test all the BigLite 4.5K parameters.

When you are in this submenu, you can begin the test by pressing the « ok » key. A message is displayed on the LCD monitor indicating that the test of the chosen parameter is being processed.

2. Test pan submenu

----- PAN TEST -----
PAN = 0000000 <>

Allows you to test the Pan movement of the projector:

- Press the « + » key to run the motor in a clockwise direction,
- Press the « - » key to run the motor anticlockwise.

The LCD display indicates the coding points value of stripe converters (500 steps for 1 motor cycle).

3. Tilt test submenu

----- TILT TEST -----
TILT = 0000000 <>

Allows you to test the Tilt movement of the projector:

- Press the « + » key to run the motor in a clockwise direction,
- Press the « - » key to run the motor anticlockwise.

The LCD display indicates the coding points value of stripe converters (500 steps for 1 motor cycle).



4. Colour scroller # 1 (Magenta) test submenu

- SCROLLER # 1 TEST -
SCROLLER = 00 <>

Allows you to test the colour scroller cassette # 1.

- Press the « + » key to increment the value of the parameter,
- Press the « - » key to decrease the value of the parameter.

If you hold down the « + » or « - » key, the scrolling up or down of the displayed number is going to accelerate.

5. Colour scroller # 2 (Cyan) test submenu

- SCROLLER # 2 TEST -
SCROLLER = 00 <>

Allows you to test the colour scroller cassette # 2:

- Press the « + » key to increment the value of the parameter,
- Press the « - » key to decrease the value of the parameter.

If you hold down the « + » or « - » key, the scrolling up or down of the displayed number is going to accelerate.

6. Colour scroller # 3 (Yellow) test submenu

- SCROLLER # 3 TEST -
SCROLLER = 00 <>

Allows you to test the colour scroller cassette # 3:

- Press the « + » key to increment the value of the parameter,
- Press the « - » key to decrease the value of the parameter.

If you hold down the « + » or « - » key, the scrolling up or down of the displayed number is going to accelerate.

7. Shutter test submenu

- SHUTTER TEST -
SHUTTER = 00 <>

Allows you to test the Shutter module:

- Press the « + » key to increment the value of the parameter,
- Press the « - » key to decrease the value of the parameter.

If you hold down the « + » or « - » key, the scrolling up or down of the displayed number is going to accelerate.



8. Focus test submenu

- FOCUS TEST -
FOCUS = 00 <>

Allows you to test the focus module:

- Press the « + » key to increment the value of the parameter,
- Press the « - » key to decrease the value of the parameter.

If you hold down the « + » or « - » key, the scrolling up or down of the displayed number is going to accelerate.

9. Dimmer text submenu

- DIMMER TEST -
DIMMER = 00 <>

Allows you to test the focus module:

- Press the « + » key to increment the value of the parameter,
- Press the « - » key to decrease the value of the parameter.

If you hold down the « + » or « - » key, the scrolling up or down of the displayed number is going to accelerate.

Configuration menu

This menu offers several submenus.

Enter those submenus by pressing the « ok » key:

1. Patch type submenu,
2. Configuration when no DMX submenu,
3. Default setting of parameters submenu.

1. Patch type submenu

Allows you to address the BigLite 4.5K with DMX channels or with «unit» number.

Pressing the « ok » key allows to enter this submenu:

PATCH CONFIGURATION
DMX CHANGE TO UNIT ?

- Press the « + » key to increment the value of the parameter,
- Press the « - » key to decrease the value of the parameter.

Pressing the « ok » key allows to select the submenu.



2. Configuration when no DMX dmx signal submenu

Choose between **freeze** and **standby**:

1. « **Standby mode** » After 6 seconds without DMX signal, Pan and Tilt position themselves at 50% and Shutter closes at 0%.
2. « **Freeze mode** » When there is no DMX signal, all functions keep the last DMX value.

Pressing the « **ok** » key allows to enter this submenu:

DMX FAILURE=Standby
CHANGE TO FREEZE ?

Pressing the « **ok** » key allows to select the **freeze** or **standby** submenus.

3. Default parameters configuration submenu

Press the « **ok** » key to restore the default parameters. The default parameters are:

1. DMX channels address setting,
2. Absence of DMX=Standby.

Command system menu

This menu has several submenus.

Enter this menu by pressing the « **ok** » key:

1. Lamp on command submenu
2. Lamp off command submenu
3. Module reset submenu
4. General reset submenu
5. Reflector X axis position adjustment submenu
6. Reflector Y axis position adjustment submenu

1. Lamp on command submenu

LAMP CONTROL
LAMP ON?

Pressing the « **ok** » key allows **STRIKING** the lamp.

2. Lamp off command submenu

LAMP CONTROL
LAMP OFF?



Pressing the « **ok** » key allows **KILLING** the lamp.

Keyboard shortcuts allow performing these operations faster:

- To perform a strike: press on the << + >> key in the Welcome menu.
- To perform a kill: press on the << - >> key in the Welcome menu.

3. Module reset submenu

Pressing the « **ok** » key allows performing a reset of the following modules only:
Focus/zoom - Scrollers – Shutter.

4. General reset submenu

Pressing the « **ok** » key allows resetting all functions: Pan, Tilt, Focus/zoom, Scrollers, and Shutter.

5. Reflector X axis position adjustment submenu

Pressing the « **ok** » key allows aligning the reflector with the bulb, in order to get the best light output and beam quality.

For the adjustment procedure: see appendix <<DMX functions>>.

6. Reflector Y axis position adjustment submenu

Pressing the « **ok** » key allows aligning the reflector with the bulb, in order to acquire the best light output and beam quality.

For the adjustment procedure: see appendix <<DMX functions>>.

Information system menu

Pressing the « **ok** » key allows entering the menu.
It shows the lamp hour meter and number of strikes.

Show menu

This menu has two submenus.

Pressing the « **ok** » key allows selecting the submenu:

1. Show # 1 launching submenu
2. Show # 2 launching submenu
 1. Show # 1 launching submenu
Allows launching show n°1
 2. Show # 2 launching submenu
Allows launching show n°2



Summary of DMX channels

Channel 1	Pan high	
Channel 2	Pan low	
Channel 3	Tilt high	
Channel 4	Tilt low	
Channel 5	Strobe	0= No strobe. 01->255 from slow to fast speed.
Channel 6	Delay	0 = No delay. From 0>255 the smallest to the largest delay. <u>See conditions to execute the following features:</u> If the function is active, you can adjust the reflector in the X axis. Delay at 255: the X motor runs one way. Delay at 0: the X motor runs in the opposite direction. Delay at 255: the Y motor runs one way. Delay at 0: the Y motor runs in the opposite direction.
Channel 7	Dimmer	0 – 10V. 0 – 255. Linear command.
Channel 8	Functions	0= Functional colours in linear mode 0-255. 5= Functional colours in cut mode (see colour table Cut). To execute these following functions, set the delay channel at 86 to load the function then set the delay channel at 171 to execute the function. 30= X axis reflector adjustment. (see conditions below) 35= Y axis reflector adjustment. (see conditions below) 40= Security bolting reflector adjustment (by default), 100= Strike, 175= Lamp hours & strikes meter reset (see condition), 180= Scroller # 1 reset (Magenta), 185= Scroller # 2 reset (Cyan), 190= Scroller # 3 reset (Yellow), 195= Shutter reset, 200= Focus/zoom reset, 205= Head reset (except Tilt & Pan), 210= Total reset (Pan & Tilt and head), 240= Kill.
Channel 9	Scroller 1	see byte function for type of displacement 0-255
Channel 10	Scroller 2	see byte function for type of displacement 0-255
Channel 11	Scroller 3	see byte function for type of displacement 0-255
Channel 12	Shutter	0-255
Channel 13	Focus	0-255



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Conditions

Channel 5	Strobe	DMX = 0
Channel 9	Scroller 1	DMX = 1
Channel 10	Scroller 2	DMX = 2
Channel 11	Scroller 3	DMX = 3

Colours table CUT

DMX	0-21	Gel # 1	Clear
	22-42	Gel # 2	Density # 1
	43-64	Gel # 3	Density # 2
	65-85	Gel # 4	Density # 3
	86-106	Gel # 5	Density # 4
	107-127	Gel # 6	Density # 5
	128-149	Gel # 7	Density # 6
	150-170	Gel # 8	Density # 7
	171-191	Gel # 9	Clear
	192-212	Gel # 10	Diffusion
	213-234	Gel # 11	Silk - Vertical
	235-255	Gel # 12	Silk - Horizontal

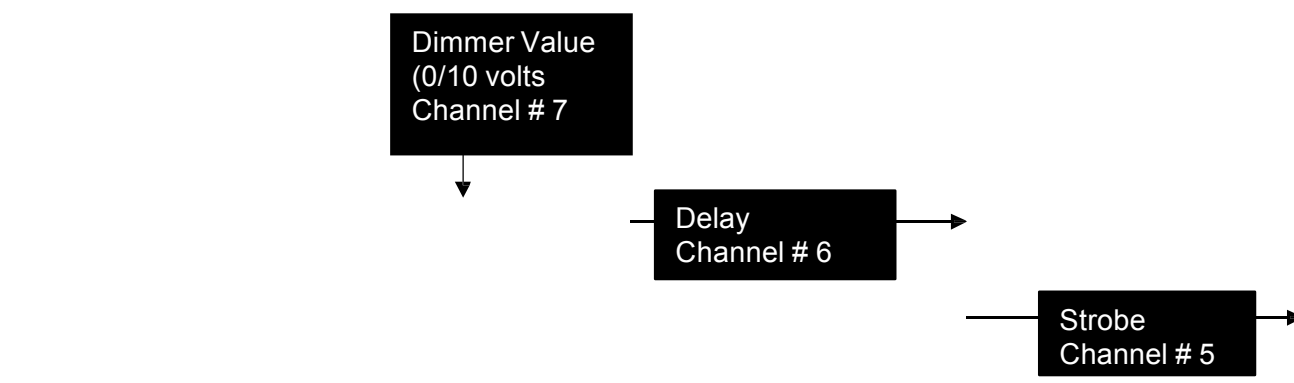
Keyboard quick access

Keyboard shortcuts allow performing fast operations:

- To perform a **strike**, press the << + >> key in the welcome menu.
- To perform a **kill**, press the << - >> key in the welcome menu.

Strobe explanations

The strobe allows various effects. Mastering the different parameters helps a good functioning.





From a DMX console

Any type of DMX console or controller can control the BigLite 4.5K as long as it follows DMX standards. The DMX distribution (cabling – splitter) should be made with XLR 5 points connectors.

As the BigLite 4.5K is designed for bi-directional communications, Zap Technology recommends using only double pair shield cabling.

Ground setting up

The BigLite 4.5K projector can be used:

1. Standing on the flight case base

BigLite 4.5K standing on its flight case base



2. Standing directly on the ground (on the adjustable Tripod feet)

Tripod three screw jacks



NB: The stability of the BigLite 4.5K support should always **be checked and the strength of the structure needed should never be underestimated**. The BigLite 4.5K weights 134 Kg. The inertia generated by Pan and Tilt movements should also be taken into account. The average surface of the platform needed is 1,50m x 1,50m.

Last but not least, the projector should be protected with its BigLite rain cover after every outdoor use.



BigLite 4.5K rain cover



Truss hanging setting up

The BigLite 4.5K should be used hung under horizontal truss or resting on horizontal truss. A maximum 20° bend is allowed.

- ***EZ Clamp hook***

EZ Clamp hook



Description

The EZ Clamp hook was specially designed for BigLite 4.5K and SuperBig 6K and 7K projectors. It can be fixed on or under truss ranging from 30 to 50 cm and 50 mm section tubes.



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NB: The EZ Clamp hook supports

a weight of 140 Kg so it should be carefully tested and transported. The four hooks linking the clamp to the truss should be firmly tightened.

The EZ Clamp hook is delivered with a safety cable. This safety cable also links the EZ Clamp hook to the truss. A second safety cable (also delivered with the EZ Clamp hook) links the BigLite 4.5K Tripod base to the EZ Clamp hook.

- ***Flight case positioning***

The BigLite 4.5K flight case can be swing around in order to facilitate the hanging of the projector.

Fixing on castors and their support in order to hang the BigLite 4.5K under a truss

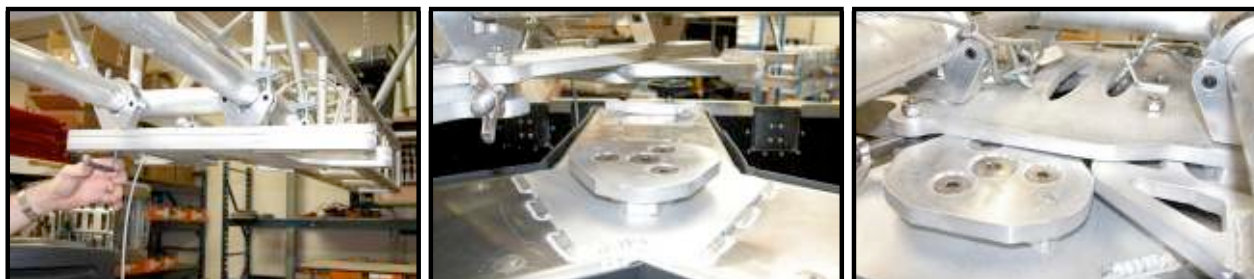


Swinging the flight case in order to hang the BigLite 4.5K under a truss





Attaching the EZ Clamp hook



Fixing the BigLite 4.5K on the EZ Clamp and Truss



Switching on the BigLite 4.5K

Once the BigLite 4.5K is in position (resting on the ground or hanging from a truss), it is compulsory to follow this switching on process.

1. Carefully check the local main power supply:
 - a. Power available,
 - b. Current between phases – Ground/Phases – Neutral/Phases etc...,
 - c. Condition of existing cables,
 - d. Ballast switches are on « **OFF** » position.
2. Always take out the BigLite 4.5K rain cover before any switching on.
3. Plug the Ballast power in the P7 32 tri plug.

NB: There are only two types of Ballasts: 208V 3 phases OR 400V 3 phases +T+N 1. The current tension used in the country should always be checked.

European version ballast	400V 3 phases – Connector P17 – 32 Tri
US version ballast	208V 3 phases – Twist-Lock 4 Pole 5 Wire Grounding 30 Ampere 3□ Y 120/208VAC



4. Link the BigLite 4.5K to its Ballast:

- a. Plug in the Diconnex/CEEP quarter-turn multiconductor,

Plugging the Diconnex/CEEP quarter-turn multiconductor in the BigLite 4.5K base



Plugging the Diconnex/CEEP quarter-turn multiconductor in the back of the Ballast



- b. Plug in the SnapLock plug according to colors,



Plugging the lamp cables in the BigLite 4.5K base



Connecting the lamp cables to the back side of the Ballast



5. Link the BigLite 4.5K to DMX data network,

XLR « IN » and « OUT » connectors for DMX Control – back side of the Ballast



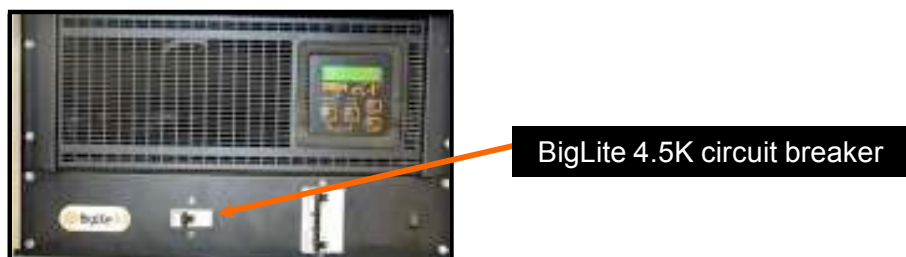


NB: the BigLite 4.5K **should always be directly connected to the console** (daisy chain distribution) strictly following DMX standard instructions.

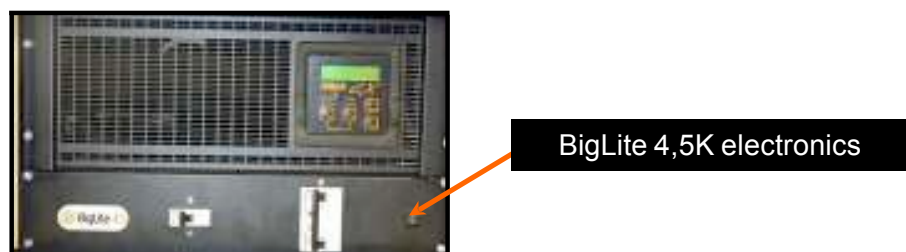
6. Check your installation – Make sure that:
 - a. Nothing is blocking the BigLite 4.5K Pan and Tilt movements,
 - b. Pan and Tilt locking systems are off,
 - c. The lighting console does not send strike signal to the lamp.
7. Switch on the main ballast circuit breaker – wait for 5-10 seconds.



8. Switch on the BigLite 4.5K circuit breaker.



9. Switch on the the BigLite 4.5K electronic switch – wait for the end of the reset. You should **never switch on more than one BigLite 4.5K at the same time. Always remember to check that nobody is close to the machine.**



10. Once the BigLite 4.5K power is on, it is possible to switch on the lamp.
11. Always **switch on the lamps one by one**. Wait till the end of the reset process **before switching on the next BigLite 4,5K**. Two technicians should be working together during the lighting up phase: one operator near the console and the maintenance officer near the BigLite 4.5K. The two technicians can communicate with walkie-talkie.



BigLite 4.5K flight cases

- **Projector flight case**

The BigLite 4.5K flight case was designed for maximum protection of the projector. Before going into production, it was tested in all transport configurations (trailers, air freight).

1. Dimensions

BigLite 4.5K dimensions	Dimensions (cm)	Dimensions (inch)
Height	150	59.06
Width	81	31.89
Length	89	35.04

Biglite 4.5K flight case



2. Weight

Description	Weight (Kg)	Weight (Pound)
BigLite 4.5K flight case weight	67	147.9
BigLite 4.5K projector weight	134	295.81
Total weight	201	443.71



3. Opening

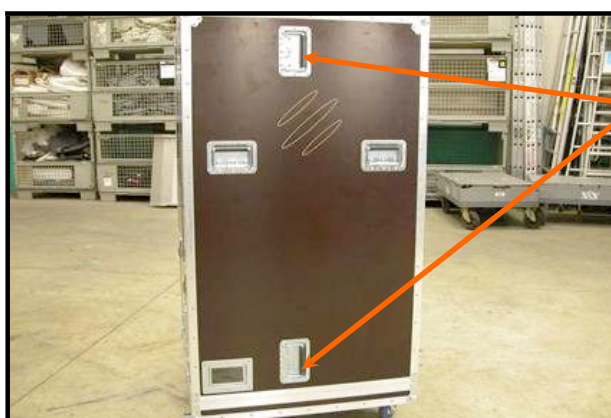
The BigLite 4.5K flight case can be taken apart in three pieces:

1. Castor mounted base (2 free wheels + 2 brake wheels),
2. « Side A » cover,
3. « Side B » cover.



NB «Side A » and « Side B » covers are fitted with:

- A second set of handles. This allows you to swing the flight case more easily when the BigLite 4.5K needs to be hung to a truss.



2nd set of handles

- Screwable plate allowing the flight case to be temporary fitted with castors for smooth but **short transportation** of the projector in a swing position (across a stage for instance). **Screwable plates and castors are optional accessories. Not delivered with flight cases.**



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NB For longer transportation, the BigLite 4.5K must be in a vertical position with its tripod resting on the flight case base and the projector body pointing toward the sky.

Plexiglass panel allowing an easy check of the serial number





- **Ballast flight case**

- Overall dimensions

Ballast flight case	Dimensions (cm)	Dimensions (inch)
Height	33	13
Width	54	21.26
Length	75	29.53

Ballast flight case – BigLite 4.5K



- Weight

Description	Weight (Kg)	Weight (Pound)
Ballast flight case weight (including power distribution)	20	44.15
Ballast weight	21	46.37
Total weight	41	90.51

- Opening

The flight case opens with two identical “Open Road” trap doors.

Ballast flight case – front side

Ballast flight case – back side





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NB: using tips:

1. The ballast should not be stored in a humid place,
2. The ballast should not be used under the rain.
